

October 15, 2021

VIA ELECTRONIC FILING

The Honorable Jocelyn G. Boyd
Chief Clerk/Administrator
Public Service Commission of South Carolina
101 Executive Center Drive
Columbia, South Carolina 29210

In Re: Application of Duke Energy Progress, LLC for Approval of Rider DSM/EE-13,
Increasing Residential and Non-Residential Rates
Docket 2021-243-E

Dear Ms. Boyd:

On behalf of the Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League, please find Comments attached for electronic filing in the above-referenced docket.

Please contact me if you have any questions regarding this filing.

Sincerely,

s/Emma Clancy
Southern Environmental Law Center
525 East Bay Street, Suite 200
Charleston, South Carolina 29403
Telephone: (843) 720-5270
Facsimile: (843) 414-7039
eclancy@selcsc.org

*Counsel for Southern Alliance for Clean Energy and
the South Carolina Coastal Conservation League*

STATE OF SOUTH CAROLINA
BEFORE THE PUBLIC SERVICE COMMISSION
DOCKET NO. 2021-243-E

In the Matter of:)	
Application of Duke Energy Progress,)	COMMENTS OF SOUTH
LLC for Approval of Rider DSM/EE-)	CAROLINA COASTAL
13, Increasing Residential and Non-)	CONSERVATION LEAGUE AND
Residential Rates (Part 1 of 2))	SOUTHERN ALLIANCE FOR
)	CLEAN ENERGY
)	

The South Carolina Coastal Conservation League (“CCL”) and Southern Alliance for Clean Energy (“SACE”) welcome the opportunity to submit the following comments on Duke Energy Progress, LLC’s (“DEP” or “the Company”) application for approval of its demand-side management (“DSM”) and energy efficiency (“EE”) rider for 2022 (“Rider 13”).

INTRODUCTION

These comments aim to provide the Company and the South Carolina Public Service Commission (“Commission”) with recommendations to build on DEP’s programs and achieve deeper energy savings. These comments will provide: 1) a high-level review of DEP’s DSM/EE portfolio performance in 2020, with consideration of the impacts from the COVID-19 pandemic; 2) an overview and evaluation of DEP’s DSM/EE savings forecast for 2022; 3) several recommendations to improve the savings performance of DEP’s DSM/EE portfolio. Specifically, we encourage the Commission to direct DEP to develop a 1% savings plan, proportionately increase its low-income efficiency program

budgets to Duke Energy Carolina's ("DEC") levels, and implement recommendations developed in the Duke Energy DSM/EE Collaborative ("Collaborative").

REVIEW OF DEP'S 2020 ENERGY SAVINGS PERFORMANCE

- A. Though DEP is to be commended for proactively adjusting in the face of unprecedented challenges brought on by the COVID-19 pandemic, DEP's reported energy efficiency savings continued to decline in 2020.**

DEP's reported energy efficiency savings were lower in 2020 than in each of the previous three years. In 2020, DEP delivered 307.2 gigawatt-hours ("GWh") of efficiency savings at the meter, equal to 0.70% of the previous year's retail sales.¹ This reflects a 12.2% decline in total savings from the previous year when the Company reported 350 GWh in annual efficiency savings. Though DEP should be commended for proactively adjusting its approach in the face of unprecedented challenges brought on by the COVID-19 pandemic, DEP's reported savings have not reached the 1% annual savings target agreed to in the Duke Energy-Progress Energy Merger Settlement and the company continues to lag considerably behind DEC.²

Table 1. Duke Energy Progress DSM/EE Performance 2017-2020

Vintage Year	2017	2018	2019	2020
At Meter Savings (GWh) ³	359.9	380.2	350.0	307.2
Previous Year Variance (%)	-	5.6%	-7.9%	-12.2%

¹DEP reports energy savings and projections as "Net at Plant" or at the generator level. A line loss factor of (1+0.051) obtained from DEP Response to CCL/SACE Data Request 1-9 in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E), attached as Exhibit 1, is used to convert total savings from Total All Programs (no DSDR) to "at the meter." See DEP EE/DSM Rider 13 Application, Exhibit 7, page 5, filed in SC PSC Dkt. 2021-243-E. Previous year retail sales obtained from EIA Form 861 2019, Sales to Ultimate Customers.

² The Merger Settlement with SACE, CCL, and Environmental Defense Fund calls for annual energy savings of at least 1% of prior-year retail sales beginning in 2015 and cumulative savings of at least 7% over the period from 2014 through 2018. The Merger Settlement was approved by the Public Service Commission of South Carolina in Docket No. 2011-158-E.

³ Generator savings 2018-2020 obtained from DEP EE/DSM Rider 13 Application, Exhibit 7, page 1-5, filed in SC PSC Dkt. 2021-243-E. 2017 savings obtained Evans Exhibit 1, Page 7 filed in NCUC Docket No. E-2, Sub 1206. Converted to at the meter using line loss factor from Footnote 1.

In Docket No. 2019-262-E, the Company projected annual energy savings for its entire portfolio equal to 315.1 GWh at the meter, or 0.72% of the prior year's retail sales. Because those projections preceded the COVID-19 pandemic and the lockdowns it precipitated, they understandably did not take those unanticipated circumstances into account. Ultimately, DEP's portfolio of programs achieved 97% of its projections for 2020, only slightly lower than forecasted in 2019. Historically, DEP's projections have nearly always underestimated its actual energy savings. The comparison highlights that, in 2020, the Company's projections were conservative enough that they were nearly achievable even during a global pandemic. The difference between the Company's DSM/EE performance and the Company's own projections is shown below in Table 2.

Table 2. DEP Projected vs. Actual Savings at the Meter⁴

Year	Projected Savings (GWh)	Actual Savings (GWh)	Actual to Projected Variance (%)
2017	333.8 ⁵	359.9 ⁶	7.8%
2018	308.6 ⁷	380.2 ⁸	23.2%
2019	324.5 ⁹	350.0 ¹⁰	7.9%
2020	315.1 ¹¹	307.2 ¹²	(2.5%)
2021	378.7 ¹³		
2022	397.7 ¹⁴		

⁴Docket numbers referenced below report actual energy savings and projections as "Net at Plant" or at the generator level, but the table summarizes at the meter for the sake of consistency of previous sections.

⁵ Evans Exhibit 1, Page 9 filed in NCUC Docket No. E-2, Sub 1108.

⁶ Evans Exhibit 1, Page 7 filed in NCUC Docket No. E-2, Sub 1206.

⁷ Evans Exhibit 1, Page 7 filed in NCUC Docket No. E-2, Sub 1145.

⁸ DEP EE/DSM Rider 13 Application, Exhibit 7, page 1, filed in SC PSC Dkt. 2021-243-E.

⁹ Evans Exhibit 1, Page 7 filed in NCUC Docket No. E-2, Sub 1174.

¹⁰ DEP EE/DSM Rider 13 Application, Exhibit 7, page 3, filed in SC PSC Dkt. 2021-243-E.

¹¹ Evans Exhibit 1, Page 7 filed in NCUC Docket No. E-2, Sub 1206.

¹² DEP EE/DSM Rider 13 Application, Exhibit 7, page 5, filed in SC PSC Dkt. 2021-243-E.

¹³ Evans Exhibit 1, Page 5 filed in NCUC Docket No. E-2, Sub 1252.

¹⁴ DEP EE/DSM Rider 13 Application, Exhibit 7, page 7, filed in SC PSC Dkt. 2021-243-E.

Generally, in reviewing EE/DSM performance, it is also important to review the impact that the opt-out provisions have on overall savings. By calculating energy savings compared to all retail sales, the Commission can observe the effect of the efficiency portfolio against actual customer energy consumption in a year. Unfortunately, in contrast to numerous past proceedings, DEP did not provide the figures showing the percentage of retail sales with and without opt out customers.¹⁵ It is clear, however, that opt outs continue to drag down DEP's total efficiency savings, which could otherwise be much higher.

B. DEP's DSM/EE programs continue to be cost-effective.

The value of DSM/EE programs continued to be cost-effective and delivered considerable financial value to customers. In 2020, DEP's DSM/EE portfolio had a Utility Cost Test ("UCT") score of 2.01 and a Total Resource Cost ("TRC") score of 1.65, though both scores were significantly lower than those in 2019.¹⁶ The total net present value ("NPV") of avoided costs in 2020 was also substantially lower than in previous years, but still amounted to approximately \$134 million of financial benefit for customers.¹⁷

Table 3. Duke Energy Progress DSM/EE Cost Effectiveness 2017-2020¹⁸

Vintage Year	2017	2018	2019	2020
Utility Cost Test (UCT)	3.87	4.15	3.01	2.01
Total Resource Cost (TRC)	2.64	3.52	2.87	1.65
Net Present Value (NPV) (Million)	\$330.2	\$321.1	\$235.8	\$134

¹⁵ DEP Response to CCL/SACE Discovery Request 1-7 in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E), attached as Exhibit 3.

¹⁶ DEP Response to CCL/SACE Data Request 1-3 in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E).

¹⁷ *Id.*

¹⁸ *Id.*

C. DEP's residential portfolio continues to be driven by behavioral programs, whereas a more balanced approach would lead to deeper savings.

Residential programs have made up the majority of savings in DEP's portfolio for the past several years and 2020 was no exception. Residential programs represented 72% of all savings in 2020.¹⁹ One residential program, My Home Energy Report ("MyHER"), made up nearly half of DEP's total savings in 2020 at 48% of reported system energy reductions. As noted numerous times in previous years, the bulk of DEP's DSM/EE portfolio savings are from a behavioral program with limited measure life persistence. This concern was further heightened by the Market Potential Study DEP presented to the Commission in its most recent integrated resource plan ("IRP"), which attributed 72-78% of its 5-year cumulative efficiency savings potential to behavioral programs.²⁰ We urge the Company to focus on implementing additional measures that achieve deeper and longer-lived savings in order to maintain a more balanced and robust program portfolio going forward. These measures should include adding to or modifying programs that target the largest residential end uses of electricity, such as space heating & cooling and water heating.

D. Non-residential savings continued to decline in 2020.

In 2020, DEP's non-residential programs made up just 28% of total energy efficiency savings.²¹ DEP's non-residential efficiency program savings declined 17% from just the previous year, nearly double the level of decline seen for residential programs, most likely resulting from the economic decline brought on by the COVID-19 pandemic.

¹⁹ DEP EE/DSM Rider 13 Application, Exhibit 7, page 5, filed in SC PSC Dkt. 2021-243-E.

²⁰ Nexant (submitted to Duke Energy), "Duke Energy North Carolina EE and DSM Market Potential Study" June 2020, p. 106.

²¹ DEP Response to CCL/SACE Data Request 1-10 in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E), attached as Exhibit 2.

However, even pre-pandemic, DEP demonstrated a troubling trend of being unable to meet projections for non-residential programs and falling savings among commercial and industrial customers. This broader trend has resulted in a 37% decrease in non-residential energy savings from 2018-2020.²²

Commercial and industrial opt outs continue to negatively impact DEP's ability to reach higher savings benchmarks due to this group's large share of energy consumption. Based on available data, in 2020 approximately 55.8% of DEP's South Carolina commercial and industrial energy consumption opted out of the utility's energy efficiency offerings (2,337 GWh²³ out of 4,191 GWh²⁴ of DEP's South Carolina non-residential retail sales). Because commercial and industrial efficiency savings can be among the most economic, greater savings among these customers would likely translate into even higher utility-system cost reductions.

E. DEP should be commended for its management of the challenges presented by the COVID-19 Pandemic.

DEP performed better than many other major utilities in the region, as discussed in greater detail below. This was in part because DEP was among the first utilities in the Southeast to implement new safety protocols enabling it to resume some in-home energy efficiency services. DEP's response to the pandemic indicates a kind of commitment, flexibility, and initiative that will serve the Company well if it again accepts the challenge of pursuing the savings target of 1% of prior-year retail sales.

²² *Id.*

²³ DEP EE/DSM Rider 13 Application, Exhibit 6, filed in SC PSC Dkt. 2021-243-E.

²⁴ U.S. Energy Information Administration, Form EIA-861, Sales to Ultimate Customers, Early Release Data 2020.

We urge the Company to manage ongoing challenges created by COVID-19 through increased use of energy efficiency programs. For customers that struggled financially during the pandemic, energy efficiency improvements could provide extra money to help them afford current and past due electric bills that are now in repayment. DEP knows exactly which customers have overdue balances and has the opportunity to target deployment of its efficiency program services directly to those customers. Programs to serve low-income customers with past due bills could come in a number of different forms, ranging from customer self-install kits combined with a personalized virtual consultation, to deeper retrofit programs potentially patterned after those offered by DEC's Income Qualified Weatherization Program and its Durham Pilot Program. Participation in efficiency programs could even be matched with partial debt forgiveness. Ultimately, these steps could make enough of a difference for customers to complete their repayment plans and prevent uncollectible bills from being passed on to the general body of ratepayers. Doing so could also prevent disconnections and the attendant consequences that can result, like damaged credit scores, additional financial challenges, health risks, and in some cases eviction.

F. DEP's efficiency programs for low-income customers were hit the hardest by the COVID-19 pandemic.

DEP's low-income efficiency programs were negatively impacted to a considerable degree by the COVID-19 pandemic. In 2020, energy saved in the DEP Neighborhood Energy Saver program decreased by 84%,²⁵ making it the hardest-hit program in the entire portfolio. Unfortunately, this reduction in energy saving services came at a time when low-income customers were facing the hardest economic circumstances in recent history.

²⁵ DEP EE/DSM Rider 13 Application, Exhibit 7, page 5, filed in SC PSC Dkt. 2021-243-E

Likewise, the Multi-Family Energy Efficiency program, which benefits significant numbers of low-income customers, was impacted with a 76% savings reduction in 2020. Both of these programs experienced declines that vastly exceeded the negative impact to total residential programs.

Table 4. DEP Savings by Residential Customer / Program Type²⁶

Customer/Program Type	Energy Savings (GWh)			% Change
	2018	2019	2020	2019-2020
Income-Qualified	3.5	3.8	0.6	-84%
Multi-Family	13.8	11.9	2.8	-76%
All Residential Programs	254.1	257.4	231.6	-10%

Continued growth of efficiency savings for low-income customers has been a consistent focus at the Collaborative and Duke has shown a willingness to engage on this issue. However, as explained below, the budgets and impact of programs that DEP offers specifically to low-income customers lag far behind what DEC has been delivering, which raises significant concerns. The time has come for DEP to match the recent performance of its sister company, as set forth in more detail below.

REVIEW OF DEP'S 2022 SAVINGS FORECAST

- A. DEP projects increased savings from 2020 but has not provided its percent annual savings, which is important for comparing DEP's 2022 projections to the 1% savings target.**

DEP projects that it will achieve approximately 397.7 GWh of energy savings at the meter from both residential and non-residential programs in 2022.²⁷ This projection represents an increase from the 307.2 GWh of at the meter savings DEP reported for COVID-impacted 2020 (0.70% of prior-year retail sales), and a slight increase in savings

²⁶ *Id.*

²⁷ DEP EE/DSM Rider 13 Application, Exhibit 7, page 7, filed in SC PSC Dkt. 2021-243-E.

from DEP's peak of 380.2 GWh (0.88%) in 2018.²⁸ DEP's projected savings for 2022 are higher than it projected in its Docket 2020-176-E for 2021 (397.7 GWh of retail sales vs. 378.7 GWh, respectively),²⁹ and thus are directionally appropriate. Still, the projected savings appear to fall short of the longstanding goal of 1% annual efficiency savings that continues to be a long sought and highly emphasized priority for many Collaborative participants.

The central benchmark by which utility efficiency performance is commonly calculated and compared is efficiency savings as a percentage of the previous year's retail sales. But in a departure from previous years, DEP objected to our discovery request to provide its percent annual savings for 2022. In its objection, DEP states that the data request was "not relevant to this EE/DSM cost recovery proceeding, not required or useful to review the Company's proposed cost recovery in this proceeding, and would require the Company to perform new work or analysis."³⁰ This response raises the question of whether the company intends to work in good faith with Collaborative members to develop plans for reaching 1% annual savings in future years.

Not only does this missing data undermine a useful point of comparison with previous years, it is also problematic for comparing DEP's 2022 forecast to the 1% savings target that has served as the primary benchmark for efficiency in the Carolinas since Duke and Progress Energy merged. Even without the percent annual savings for 2022, it is clear that unless DEP increases savings beyond its current forecast, the Company will continue to fall short of the 1% threshold and the higher performance of its sister company.

²⁸ *Id.*

²⁹ SACE, CCL, NAACP Comments at 6, Dkt. 2021-176-E (Oct. 15, 2020).

³⁰ DEP Response to CCL/SACE Discovery Request 1-7 in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E), attached as Exhibit 3.

Even if DEP has presented a conservative estimate of forecasted savings for 2022 for the purposes of establishing the rider, it should acknowledge in its DSM/EE Rider filings that the Commission, Public Interest Intervenors, and members of the Collaborative will be comparing the Company's 2022 savings forecast with the 1% annual savings target. DEP could additionally state its intent to strive for these higher levels, while indicating what course of action it believes would enable it to successfully achieve those more ambitious goals.

B. DEP's forecast is particularly disappointing in light of recent changes to Duke's DSM/EE Mechanism.

In two key ways, DEP's savings forecast fails to capitalize on prevailing settlements and recent orders, including the recently approved Settlement Agreement negotiated between DEP, DEC, Walmart, Nucor Steel – South Carolina, SACE, CCL, and the Office of Regulatory Staff. This settlement, which updated DEP's EE/DSM cost-recovery mechanism (the "Mechanism") was approved in Commission Order No. 2021-33 in January 2021, and goes into effect for the first time in 2022.³¹

First, despite the 1% target being a key feature of the recent change to Mechanism and the Merger Settlement³² approved by the Commission in Docket No. 2011-158-E, DEP has yet to achieve 1% annual savings nor has the Company ever forecasted achieving 1% savings in any prior DSM/EE Rider docket filing. By contrast, DEC exceeded 1% annual savings in 2017 and 2018, and nearly reached it again with 0.98% savings in 2019. DEP's failure is notable given a new incentive available to Duke under the settlement approved

³¹ Order Approving Revised DSM/EE Mechanism, Docket No. 2015-163-E (January 15, 2021).

³² As noted above, the Merger Settlement with SACE, CCL, and Environmental Defense Fund calls for annual energy savings of at least 1% of prior-year retail sales beginning in 2015 and cumulative savings of at least 7% over the period from 2014 through 2018.

in North Carolina, which established a \$500,000 bonus incentive payment for any year during the four-year period of 2022-2025 where Duke achieves 1% of prior-year retail sales from efficiency.³³ The North Carolina Utilities Commission indicated that the purpose of the incentive is “to motivate the Company to aggressively pursue savings from cost-effective EE and DSM Programs.”³⁴

Second, the Company has failed to take advantage of Order No. 2021-33 changing the primary cost effectiveness test used in screening program offerings from the Total Resource Cost (“TRC”) test to the Utility Cost Test (“UCT”).³⁵ In discussions at the Collaborative, Duke promoted the notion that this change will help to better value efficiency benefits for inclusion in DEP’s DSM/EE portfolio and should help the Company expand its overall efficiency savings. Collaborative members agreed, especially given that the TRC, as previously applied, was asymmetrical and did not account for all benefits. However, despite the Company’s representations, changing from the TRC to the UCT does not appear to have increased the availability of cost-effective savings. In response to discovery concerning the impact of this change on DEP’s 2022 projections, the company stated: “[N]o additional savings are projected for 2022 using the UCT compared to TRC because there have been no changes to program offerings resulting from the shift from TRC to UCT for the 2022 projection.”³⁶ Moreover, between the time the Stipulating Parties submitted their Settlement Agreement and the Commission issued its Final Order, DEP

³³ See Order Approving Revisions to Demand-Side Management and Energy Efficiency Cost Recovery Mechanisms at 21, NCUC Docket No. E-2, Sub 931 (Oct. 20, 2020).

³⁴ *Id.*

³⁵ Even with the switch to UCT as the new primary cost effectiveness test, the TRC will continue to be evaluated for informational purposes, and DEP is now working with the Collaborative to undertake a study of non-energy benefits (NEBs) that could result in more complete and accurate accounting of benefits for the TRC test in the future.

³⁶ DEP Response to CCL/SACE Data Request 1-13, in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E), attached as Exhibit 4.

completed its Market Potential Study using the now outdated TRC test, rather than the UCT. Therefore, DEP's IRP significantly understated the amount of available cost-effective DSM/EE.

C. Like its 2022 Rider savings forecast, the DSM/EE assumptions DEP used in its most recent IRP underestimate future energy savings potential.

The Commission's findings in DEP's most recent IRP proceeding underscore that DEP has underestimated its future energy savings potential. As detailed in testimony submitted by Jim Grevatt on behalf of SACE, Sierra Club, and Natural Resources Defense Council in Duke's South Carolina IRP proceeding, there were several key deficiencies in the DSM/EE market potential study ("MPS") that Duke relied upon for setting energy and capacity savings levels in the IRP. Duke's MPS omitted emerging technologies and failed to consider changes to customer engagement strategies or programs designs that may increase customer participation. Additionally, as noted above, the MPS relied on the TRC test, which substantially undercounts economic savings potential, rather than the UCT.

The Commission affirmed several of the issues raised by Mr. Grevatt, resulting in the following directives, including:

- Duke is required to use the UCT when developing EE/DSM scenarios and savings projections in its future IRPs, IRP updates, and market potential studies.
- In future IRPs, IRP updates, and market potential studies, Duke must work with the EE/DSM Collaborative to identify a set of reasonable assumptions surrounding 1) increased market acceptance of existing technologies and 2) emerging technologies to incorporate into EE/DSM saving forecasts. Duke should also work with members of the Collaborative to ensure that residential saving projections are not overly dependent on behavioral programs with short savings persistence. Further, Duke's next IRPs should identify which of the Collaborative's recommendations relating to market acceptance, emerging technologies, and types of programs were and were not adopted when developing market potential studies and IRPs.³⁷

³⁷ South Carolina Public Service Commission, *Order Requiring Modification to Integrated Resource Plans*, Docket No. 2019-225-E (June 28, 2021), paras. 2-4.

In future IRPs, Duke must also evaluate high and low EE/DSM cases across a range of fuel and CO₂ assumptions to better understand what level of EE/DSM should be implemented if fuel costs rise or higher CO₂ costs are imposed.³⁸

DEP's IRP and its investment in DSM/EE programs that are the focus of its annual DSM/EE Recovery Rider dockets impact each other in important ways: when DSM/EE assumptions used in the IRP underestimate³⁹ future energy saving potential, customers wind up paying for more expensive energy, capacity, and delivery infrastructure rather than investing in less expensive strategies to eliminate energy waste. IRPs form the basis for a utility's resource acquisition decisions and underpin avoided cost calculations used in cost-effectiveness testing. Therefore, any flaws in how DSM/EE are treated in the IRP have important implications for this proceeding.

D. DEP has failed to capitalize on input from the Collaborative to improve its savings forecast.

Over the past two years, stakeholders have submitted several program proposals for Duke's consideration along with supporting materials and presented them to the Collaborative, including:

- Low-Income Housing Tax Credit (March 2019)
- Energy Star Retail Products Platform (January 2020)
- Program Savings from Building Codes and Standards (January 2020)

³⁸ South Carolina Public Service Commission, *Order Requiring Modification to Integrated Resource Plans*, Docket No. 2019-225-E (June 28, 2021) p. 86.

³⁹ DEC indicated in multiple stakeholder meetings that IRP inputs will be based on internal forecasts for at least the next five years. While DEC DSM/EE Recovery Rider projections for 2018 and 2019 were far closer to actual performance, previous filings were off by a substantial degree, typically underestimating actual savings by about 40%.

- Residential Low-Income Single-Family Heat Pump Water Heater Rental Program (June 2020)
- Non-Residential Multifamily Heat Pump Water Heater Rebate Program (June 2020)
- Manufactured Homes Retrofit Program (August 2020)
- Manufactured Home New and Replacement Programs (August 2020)

Though Duke has taken the Collaborative stakeholder program recommendations for internal review and consideration, until recently, there has been little visible action towards implementing these recommendations, and Duke has yet to submit a program application to the Commission for approval based on any of the recommendations provided by members of the Collaborative. Among the various recommendations presented by Collaborative Stakeholders, Duke appears to have done the most to advance projects receiving an allocation of Low-Income Housing Tax Credits (“LIHTC”) with the Company’s DSM/EE program offerings. But DEP reports that there is just one LIHTC project currently in the pipeline with status listed as Contract Approval, which is expected to yield 96.7 MWh of savings. Through discovery, DEP also indicates that it expanded residential midstream offerings in response to a Collaborative stakeholder recommendation by working directly with manufacturers that do not use distributors,⁴⁰ though in a separate discovery response the company states: “DEP does not track the incremental savings that can be attributed to Collaborative contributions.”⁴¹

⁴⁰ DEP Response to CCL/SACE Data Request 1-14, in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E).

⁴¹ DEP Response to CCL/SACE Data Request 1-15, in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E), attached as Exhibit 5.

These are small steps in the right direction, but we are concerned that DEP has not taken full advantage of the Collaborative's input. The Collaborative's work has the potential to provide real value to Duke and its customers. In 2019, the Collaborative prioritized exploring portfolio level opportunities and challenges and produced a summary report highlighting a range of program and policy opportunities to increase savings; the report affirmed a continued desire to see Duke sustain annual savings in excess of 1% of retail sales. In 2020, SACE, CCL, and others efficiency advocates in the Collaborative shifted focus towards development of specific program recommendations detailed above that could help to prevent savings declines and achieve sustained annual savings levels in excess of 1% of retail sales. In 2021, SACE, CCL, and other stakeholders at the Collaborative are seeking to build on this past work, but have shifted towards development of a more specific and actionable plan. The intent is that this plan will quantify the number of kWh savings needed to achieve 1% savings and then be paired with program recommendations and proposed changes to policies and practices sufficient to reach that target. Accordingly, each of these individual opportunities should be evaluated for their expected future savings contributions, then added together and measured against the savings gap. The aim is for the plan to include enough new savings opportunities to exceed 1% annual savings for each of the next six years, with sufficient redundancy and flexibility to achieve the goal even if not every individual component is implemented.

Ultimately, though, whether the plan is successful is up to Duke, as advocates at the Collaborative cannot do this work without Duke's full cooperation on both analysis and solutions development. In addition, for the Collaborative to achieve its full potential, Duke must fully inform Collaborative members about key decisions and changes. Strangely,

though it is common knowledge that the Collaborative has a strong interest in seeing DEP achieve higher efficiency savings, Duke did not inform stakeholders that the Company was already planning significant increases (of 25%-57%) in savings for many of its existing programs. Nor did Duke discuss plans to substantially decrease multifamily program savings (by 30%) for 2022 forecast which likely would have been concerning to several Collaborative members. Among other implications, this means Collaborative members were not provided an opportunity to comment on or contribute to DEP's plans for substantially shifting savings levels for its existing programs in 2022.

E. DEP's projected savings for low-income efficiency programs continues to trail DEC targets.

DEP projects savings for its Neighborhood Energy Saver of 4.7 GWh for 2022.⁴² This is DEP's only full scale program specifically designed for low income customers, yet the savings account for just 1% of total residential energy savings in 2022. Nevertheless, if achieved, this would be a 27% increase in total energy savings for DEP's low-income programs compared to its 2019 pre-pandemic performance.

In past years, DEP's low-income efficiency program performance has trailed far behind DEC. In 2019, DEP's 3.7 GWh of savings⁴³ paled in comparison to the more than 9 GWh DEC saved customers through its low-income efficiency programs.⁴⁴ For 2022, DEP is projecting 4.7 GWh of savings from its income qualified efficiency programs. DEC's projected 9.8 GWh of low-income program savings for 2022⁴⁵ are 208% higher than DEP's and its annual budget is 265% higher, despite DEC having only 62% more

⁴² DEP EE/DSM Rider 13 Application, Exhibit 7, page 7, filed in SC PSC Dkt. 2021-243-E.

⁴³ Evans Exhibit 1, p. 3, NCUC Docket No. E-2, Sub 1252.

⁴⁴ Evans Exhibit 1, p. 3, NCUC Docket No. E-7, Sub 1230.

⁴⁵ Evans Exhibit 1, p. 5, NCUC Docket No. E-7, Sub 1249.

residential customer accounts.⁴⁶ Both DEP and DEC operate neighborhood-style low-income programs and both use the same program administrator, Honeywell Building Services. But DEC also operates the Income Qualified Weatherization program, administered by the North Carolina Community Action Association, which delivers deeper individual savings for each participating household. DEP launched a Buncombe County Pay for Performance pilot program in 2019 that includes deeper saving measures, but it currently contributes only a little to the Company's overall savings and has been less successful at delivering deep efficiency savings than DEC's income qualified weatherization program. As noted above, proportionately DEP's total low-income program savings also fall far short of the levels achieved by DEC.

Despite frequent conversations about expanding low-income efficiency programs in the Collaborative, it is still unclear how DEP determines its low-income efficiency program budgets and savings targets. In response to this question during discovery, DEP stated:

As discussed in past Collaborative meetings when this question has arisen, budget and savings targets are determined based on the participation numbers filed and approved for our low-income programs. The participation numbers are generated based on the market potential and the participation needed to successfully reach a high completion/penetration rate. Consideration is also given that these programs are not cost-effective, and resources must be deployed strategically to ensure the most prudent use of customer dollars.⁴⁷

This July, Duke presented the Collaborative with two slides meant to explain the budget differences between DEP and DEC.⁴⁸ Like the discovery answer above, the Company's

⁴⁶ EIA 861 2020.

⁴⁷ DEP Response to CCL/SACE Data Request 1-12, in Duke Energy Progress DSM/EE Rider Docket (Dkt. 2021-243-E).

⁴⁸ Slides presented to the Collaborative on Income Qualified Budgeting on July 14, 2021, attached as Exhibit 6.

explanation at this meeting was ambiguous, and raised new questions, such as: Why are DEP's spending and savings levels (adjusted for differences in relative number of residential customers) so much lower than DEC's intentionally? If not, is DEP willing to bring its spending and savings levels up proportionately with a corresponding timeline? In addition, how can it be that programs are driven by customer demand when the number of customers served and budgets are predetermined and constrained by the vendor contract? For this reason, historical performance is not a meaningful indicator of customer demand, which is known to be much larger.

Despite the lack of information surrounding DEP's budgets and savings targets, it appears that the key limiting factor in how many customers get served is the level of savings DEP's internal budget is setting and not the scale of customer need. Unlike most non-income qualified efficiency programs DEP offers that are driven by individual customer demand, the Neighborhood Energy Saver program is delivered by third parties (such as Honeywell) with fixed budgets that are set by DEP, and, from the answer DEP provided above regarding its low-income programs, it seems that the kWh savings are based on the number of measures or customers that the program administrators are contracted by DEP to serve. If DEP brought its annual budget for income qualified efficiency programs up to the levels proposed by DEC for 2022 (adjusted proportionately based on residential customer counts), this would equate to \$5.4 million annually.

RECOMMENDATIONS

A. Recommendations to the Commission

1. *The Commission should direct DEP to work in good faith with members of the Collaborative to produce a plan for how best to exceed 1% annual savings in each of the next six years, to be periodically updated and presented to the Commission as an appendix to future DEP DSM/EE Rider applications*

Our principal recommendation is for the Commission to direct DEP to develop a plan for reaching, exceeding, and sustaining annual efficiency savings of 1% over the next six years. With input from the Collaborative, this plan should consider opportunities for new, expanded, and enhanced efficiency program offerings, as well as refinements to program delivery practices and potential policy changes. It should also incorporate new approaches to evaluating efficiency potential using the UCT, include new technologies, and pursue higher levels of market participation, as directed by the Commission in DEP's 2020 IRP proceeding. Without quantifying, striving, and tracking progress towards a defined savings target, like 1%, it is unlikely DEP will reach significantly higher levels of efficiency savings.

DEP's sister company in the Carolinas, DEC, has historically delivered higher annual efficiency savings performance, providing a partial roadmap for DEP to follow. Ample opportunities exist for identifying new savings strategies by examining the experience of other utilities as well. According to analysis by the American Council for an Energy Efficient Economy ("ACEEE"), 25 of the 52 largest utilities in the country have delivered annual savings in excess of 1%. Duke should assess what it can learn from the experience of peer utilities that achieve higher levels of savings and apply that to increase the savings it achieves in the Carolinas.

Additionally, recent work by ACEEE and Energy Futures Group (“EFG”) highlighted new savings opportunities for Dominion Energy in Virginia by analyzing the level of savings achieved by typical EE program types at a dozen peer utilities.⁴⁹ For each program type, EFG determined the depth of savings achieved on average by these utilities, expressed as the percentage of sector sales by program. While this analysis did not specifically include DEP, DEC was included and shows how the comparison can be used to identify opportunities for increased savings. For instance, DEC’s residential behavioral programs (like MyHER) deliver a higher than average percent of savings compared to total residential electric sales. But the savings that DEC achieves through deep efficiency programs of the type we have long recommended, like residential HVAC and residential whole house retrofit, are each about 80% *below* the average savings achieved across the comparison utilities.⁵⁰ DEC’s residential new construction⁵¹ and non-residential prescriptive programs also substantially underperform compared to peer utilities. Each of these present an opportunity to pursue substantial new efficiency savings and provide DEP with a valuable source of comparative data that it could use to pursue new efficiency savings opportunities. As a general strategy for finding new savings opportunities for its customers, DEP can draw from this ACEEE/EFG analysis and widely available original source materials documenting the successful experiences of other utility efficiency programs from which the Company can build a plan to exceed 1% annual efficiency savings.

⁴⁹ Liz Bourguet & Jim Grevatt, *Pathways for Energy Efficiency in Virginia*, Energy Futures Group (June 3, 2021), attached as Exhibit 7.

⁵⁰ <https://www.aceee.org/pathways-energy-efficiency-virginia>, download “Modeling Tool” and see tab “Consolidated Savings.”

⁵¹ DEC does not currently offer an incentive program for residential new construction, though it has submitted a program application for Commission approval.

2. *The Commission should direct DEP to increase its low-income efficiency program budgets to at least match those of DEC on a per-residential customer basis, resulting in a floor of \$5.4 million annually.*

There are several options available to DEP to achieve deeper efficiency savings programs for its low-income customers.

First, DEP could replicate the regular DEC Income Qualified Weatherization program model. The company could also deploy a modified version of this program, patterned off of the related Income Qualified Weatherization pilot program DEC offered in Durham from late 2018 through the end of 2019. The Durham Pilot involved a modified delivery for the DEC Income-Qualified Weatherization Assistance program, which provided a larger than typical package of improvements for low-income customers with comparatively high energy intensity. The program was also able to serve customers who were unable to access the federal Weatherization Assistance Program dollars due to overly long wait lists or health, safety, and incidental repair needs.⁵² A recently released EM&V report by Opinion Dynamics for the DEC Income Qualified Weatherization Program included a process evaluation of the Durham Pilot, which concluded that “a program design similar to the Durham Pilot could be a good option for bringing weatherization services to customers in South Carolina and/or the DEP service territory.”⁵³

A second option would be to dramatically scale up DEP’s Pay for Performance Pilot, if such an expansion is deemed feasible and likely to deliver comparable results.

⁵² See Testimony and Exhibits of Forest Bradley-Wright, NCUC Docket No. E-7, Sub 1249 (May 10, 2021), Exhibit FBW-3.

⁵³ Opinion Dynamics (for Duke Energy Carolinas), “Low Income Weatherization Program (2016-2018) Evaluation Report – Final.” April 2021, p. 41.

Third, DEP could increase funding and deployment of the expanded set of deeper efficiency saving measures for the Neighborhood Energy Saver⁵⁴ program that were previously approved by the Commission but never fully implemented due to the COVID-19 pandemic. If the Company pursued this route, it should also offer programming for low-income customers that includes HVAC equipment replacement, which is the largest source of energy use in a typical home and has been a major component of the DEC Income Qualified Weatherization program and the Durham Pilot.

Fourth, DEP could build on recent progress by significantly expanding the number of LIHTC projects it serves. In 2020, South Carolina Housing awarded seventeen 9% LIHTC projects in 2020.⁵⁵ The North Carolina Housing Finance Agency awarded forty-two 9% LIHTC projects and an additional twenty-four tax-exempt bond projects. The LIHTC program provides a reliable, annual pipeline of projects available for energy efficiency investments. In the near future, Duke should work towards a target that 100% of projects applying for LIHTC in its service territory are reviewed to identify relevant DSM/EE program offerings, then report on an annual basis the number of LIHTC applications reviewed, the conversion rate for participation by these projects, and through which program. To do so, DEP should work with the state housing finance agencies to ensure all LIHTC projects move through its DSM/EE program offerings, without depending on individual project administrators to become aware of the offering and initiate the process from their end.

⁵⁴ Often called NES 2.0.

⁵⁵ Housing Tax Credit (LIHTC), South Carolina State Housing Finance and Development Authority, available at: <https://www.schousing.com/Home/HousingTaxCredits>.

These examples are illustrative and not exhaustive; additional approaches could focus on particular housing types like multifamily and manufactured homes, or measures like heat pump water heaters, and new program marketing and delivery methods.

Regardless of which program designs are pursued, there will likely be trade-offs between potential total savings impact, cost per kWh savings, and average savings per participant. Whichever approach is ultimately taken, these three factors should be carefully and transparently weighed in the decision-making process with a strong emphasis placed on optimizing programs to deliver meaningful impact for individual customers with high energy burdens.

B. Recommendation to DEP

1. *DEP should expeditiously finalize the evaluation and development of program recommendations proposed by Collaborative members for direct implementation or submission of program applications to the Commission for approval.*

As time goes on there is increasing frustration among Collaborative members at the slow progress and ambiguity surrounding Duke's decision-making process, including concern with Duke's handling of the stakeholder program recommendations discussed above. Stakeholders are left wondering what to expect between the time of program recommendation submission and the Company either implementing program modifications or submitting a program application for approval at the Commission (or rejecting the recommendation, if that is their decision). We believe the Collaborative provides a valuable vehicle for this type of program development work, and urge DEP to act on Collaborative input, track the impact of Collaborative-sponsored program recommendations, and report them to the Collaborative and in future DEP DSM/EE Recovery Rider filings.

CONCLUSION

In conclusion, SACE and CCL support DEP's request for approval of Rider 13, but recommend that DEP pursue higher savings targets, expand its low income programs, and act on recommendations from the Collaborative, to the benefit of all South Carolinians. Specifically we recommend that the Commission: 1) direct DEP to work in good faith with members of the Collaborative to produce a plan for how best to exceed 1% annual savings in each of the next six years, to be periodically updated and presented to the Commission as an appendix to future DEP DSM/EE Rider applications; and 2) direct DEP to increase its low-income efficiency program budgets to at least match those of DEC on a per-residential customer basis, resulting in a floor of \$5.4 million annually. We further recommend that DEP expeditiously finalize the evaluation and development of program recommendations proposed by Collaborative members for direct implementation or submission of program applications to the Commission for approval.

Respectfully submitted this 15th day of October, 2021.

/s/ Emma Clancy
 Emma Clancy
 SC Bar No. 105051
 Southern Environmental Law Center
 525 East Bay Street, Suite 200
 Charleston, SC 29403
 Telephone: (843) 720-5070
 Fax: (843) 414-7039
eclancy@selcsc.org

*Attorney for South Carolina Coastal
 Conservation League and Southern Alliance
 for Clean Energy*

DUKE ENERGY PROGRESS, LLC

Request:

- 1-9. Please provide DEP's line loss assumptions for 2020 used to convert savings on the customers' side of the meter to savings at the generator:
- b. For energy; and
 - c. For peak demand.
 - d. Please specify if they are based on average or marginal line loss rates.

Response:

- b & c. DEP applied a line loss factor of $(1+0.051)$ to convert savings "at the meter" to savings "at the generator" for both energy and peak demand.
- d. The 5.1% value represents an average loss rate.

Exhibit 2 - SACE/CCL Comments (SC PSC Docket 2021-243-E)

SACE DR 1-10

1-10. Please provide a spreadsheet of total energy savings achieved by each of the Company's DSM/EE programs, in GWh, for 2018, 2019, and 2020

	2018 System Energy Reduction (GWh)	2019 System Energy Reduction (GWh)	2020 System Energy Reduction (GWh)
Residential Programs			
EE Programs			
1 Appliance Recycling Program	-	-	-
2 Energy Efficient Appliances and Devices	15.25	19.59	18.78
3 Energy Education Program for Schools	2.56	3.28	1.46
4 Energy Efficient Lighting	25.64	33.35	18.94
5 Residential Service – Smart Saver	7.23	6.76	6.89
6 Low Income Weatherization Pilot	-	0.13	0.11
7 Multi-Family Energy Efficiency	13.83	11.86	2.82
8 Neighborhood Energy Saver	3.54	3.70	0.51
9 Residential Energy Assessments	7.75	7.83	7.15
10 Residential New Construction	14.26	16.34	20.01
11 Save Energy and Water Kit	-	-	-
12 Total for Residential Conservation Programs	90.08	102.83	76.66
13 My Home Energy Report (1)	164.07	154.60	154.96
14 Total Residential Conservation and Behavioral Programs	254.14	257.44	231.63
15 EnergyWise	-	-	-
16 Total Residential	254.14	257.44	231.63
Non-Residential Programs			
EE Programs			
17 Business Energy Report	-	-	-
18 Energy Efficient Lighting	6.76	8.78	4.99
19 Energy Efficiency for Business	-	-	-
20 Non-Residential Smart Saver - Prescriptive	84.98	49.68	46.35
21 Non-Residential Smart Saver Custom	11.90	13.13	12.77
22 Non-Residential Smart Saver Performance Incentive	1.52	1.36	3.10
23 Small Business Energy Saver	40.30	36.43	23.47
24 Total for Non-Residential Conservation Programs	145.46	109.38	90.69
25 EnergyWise for Business	0.04	1.06	0.55
26 Commercial, Industrial, & Governmental Demand Response	-	-	-
27 Total for Non-Residential DSM Programs	0.04	1.06	0.55
28 Total Non Residential	145.50	110.44	91.24
29 Total All Programs	399.64	367.87	322.86
30 DSDR	48.06	38.08	32.10
31 Total with DSDR	447.70	405.96	354.96

(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year

(2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak

DUKE ENERGY PROGRESS, LLC

Request:

- 1-7. Please provide a calculation of DSM/EE portfolio savings adjusted for line loss (1) as a percentage of total annual sales; and (2) as a percentage of annual sales to non-opt-out customers:
- a. for the year 2020 (as a percentage of 2019 retail sales); and
 - b. forecasted for the year 2022 (as a result of forecasted 2021 sales).

Response:

The Company objects to this data request on the ground that it is not relevant to this EE/DSM cost recovery proceeding, not required or useful to review the Company's proposed cost recovery in this proceeding, and would require the Company to perform new work or analysis.

DUKE ENERGY PROGRESS, LLC

Request:

- 1-13. In Commission Order 2021-33, the Commission authorized DEP to shift from using the Total Resource Cost test to the Utility Cost Test as the primary basis for evaluating the cost effectiveness of energy efficiency programs, beginning in 2022. Please indicate how much additional savings DEP is projecting for 2022 using the UCT compared to what would have been achieved using the TRC, both in aggregate and broken out by program.

Response:

The Company objects to this data request on the ground that is not relevant to this EE/DSM cost recovery proceeding, not required or useful to review the Company's proposed cost recovery in this proceeding, and it would require the Company to perform a new analysis or projection.

Without waiving said objection, the Company responds that no additional savings are projected for 2022 using the UCT compared to TRC because there have been no identifiable changes to program offerings resulting from the shift from TRC to UCT for the 2022 projection.

DUKE ENERGY PROGRESS, LLC

Request:

1-15. Please quantify the additional efficiency savings attributable to stakeholder recommendations in the Collaborative.

Response:

DEP does not track the incremental savings that can be attributed to Collaborative contributions.

Carolinas Income Qualified Budgeting

Budgeting Considerations

- Energy Efficiency spend ratepayer funds and should be done prudently and responsibly
- The initial filing and historical program performance is used to help determine customer demand for the program
- Experience in other jurisdictions is considered, but the specific territory characteristics weigh more heavily
- In the Carolinas, the budget can be exceeded if the additional cost is driven by customer demand
- Include risks or market changes that need to be considered
- Define the capability of the resources and ability to flex
- Remaining market potential



DEC v. DEP Income Qualified Budgeting

Why does DEC have a larger budget than DEP?

- DEC is about 40% larger and has more income qualified customers
- DEC has an existing weatherization program
- No DEP weatherization program was filed initially and has been delayed in recent years to evaluate the following:
 - Learn from DEC and why there was over \$1M unspent annually
 - Consider cost effective pilot program in Asheville area
 - Consider NES 2.0 approach providing deeper measures
- DEP's Neighborhood Energy Saver was purposely constrained to \$2M budget when filed in 2008
- NES 2.0 was filed and approved, but we are just now launching after the COVID suspension. Experience will allow for "right sizing" the budget





Pathways for Energy Efficiency in Virginia

Scenarios for Virginia Electric and Power Company to Achieve
the Virginia Clean Economy Act Energy Efficiency Savings Goals

Prepared by:

Liz Bourguet and Jim Grevatt

June 3, 2021

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA |  802-482-5001 |  802-329-2143 |  info@energyfuturesgroup.com

Contents

About the Authors	3
I. Executive Summary	4
Introduction and Purpose	4
Energy Efficiency Savings Requirements	6
VCEA Requirements for Historically Underserved Customers	8
Expected Results from Currently Approved Programs	9
II. Different Scenario Approaches and Results	9
III. Savings Opportunities beyond 2025	12
IV. Conclusion	13
Appendix A – Methodology	14
Appendix B – Four Example Scenarios	22
Appendix C – Data Sources: Dominion and Comparison Portfolios	31

About the Authors

Energy Futures Group (EFG) is a clean energy consulting firm based in Hinesburg, Vermont and with offices in Boston and New York. EFG specializes in the design, implementation and evaluation of programs and policies to promote investments in energy efficiency, renewable energy, other distributed resources, and strategic electrification. EFG staff have worked on these issues on behalf of energy regulators, other government agencies, utilities and advocacy organizations across the United States, Canada, Europe, and China.

Liz Bourguet is a Senior Analyst at Energy Futures Group in Hinesburg, Vermont. She joined EFG in 2020 after graduating from the Yale School of Forestry and Environmental Studies with a Master of Environmental Management, specializing in environmental policy analysis. Her capstone report, Opportunities and Challenges for Investor-Owned Utilities in a Changing Climate, prepared for the Natural Resources Defense Council, assessed grid modernization and utility financing in the face of increasing wildfires in California. Her professional experience includes work for National Wildlife Federation and Environmental Advocates of New York, where she organized environmental campaigns, drafted policy recommendations, advocated for environmental legislation through lobbying and public outreach, and conducted research on energy policy and transportation issues. Most recently she held an internship with the US Climate Alliance, where she provided research and recommendations on best practice climate policies to the coalition of states committed to the Paris Agreement.

Jim Grevatt has 30 years of experience in energy efficiency program planning and operations. At Energy Futures Group Jim has advised regulators, program implementers, and advocates in twenty-three states and provinces, and has provided expert witness testimony in fourteen of those jurisdictions. Jim has hands-on experience with industry-leading approaches to designing and managing energy efficiency programs, including multi-family, low income, residential retrofit, new construction, HVAC, and efficient products programs. His in-depth knowledge of program operations and clear understanding of strategic thinking and planning ensure that programs achieve their desired market impacts. In past leadership roles at Efficiency Vermont, the DCSEU, and Vermont Gas, Jim had overall responsibility both for program design and operations, assuring that programs were efficient and effective.

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

I. Executive Summary

Introduction and Purpose

This report was developed to explore whether, by effectively implementing a suite of energy efficiency programs similar to those currently implemented by other large utilities, Virginia Electric and Power Company (“Dominion” or “Company”) can meet and exceed the savings requirements of the Virginia Clean Economy Act (“VCEA”). The report was requested by a group of clean energy non-profits in Virginia, including the National Housing Trust (“NHT”), The Nature Conservancy (“TNC”), the Virginia chapter of the Advanced Energy Economy (“Virginia AEE”), and the American Council for an Energy Efficient Economy (“ACEEE”).¹

To support our analysis we created a model that builds off the programs that have been approved for implementation by the State Commerce Commission (“SCC” or “Commission”) prior to 2021.² The model incorporates reported costs and savings from a dozen large utility energy efficiency portfolios (“comparison utilities” or “comparison portfolios”)³ and allows comparison of the savings results of user-defined scenarios that describe different combinations of programs at varying penetration levels. We created four different sample scenarios that highlight different policy priorities while maintaining opportunities for all eligible customer sectors, in each case demonstrating compliance with VCEA savings requirements. ***Our work shows that meeting the 2022-2025 savings requirements is achievable without extraordinary or unusual efforts by simply implementing the kinds of energy efficiency programs that commonly provide the majority of energy savings for leading electric utilities.*** The Company can meet its savings requirements with longer lasting comprehensive savings for commercial and residential customers, lower cost but shorter-lived measures, or a reasonable balance of the two. In each case we find the Company can also meet the VCEA requirements for energy efficiency investments for low-income communities, however these expenditures must increase significantly as other programs ramp up if the Company is to meet this obligation. Dominion can continue to work with its stakeholders to identify program opportunities while also focusing on implementing and expanding the key programs that will drive savings results if it expects to meet its VCEA requirements.

¹ In this report, we refer to ACEEE, NHT, TNC, and Virginia AEE as the “core project team”.

² These are programs that have been approved in Phase I through Phase VIII, referred to in Dominion’s IRP as “Category 1” programs.

³ To learn more about how we selected and utilized comparison utilities see Appendix A.

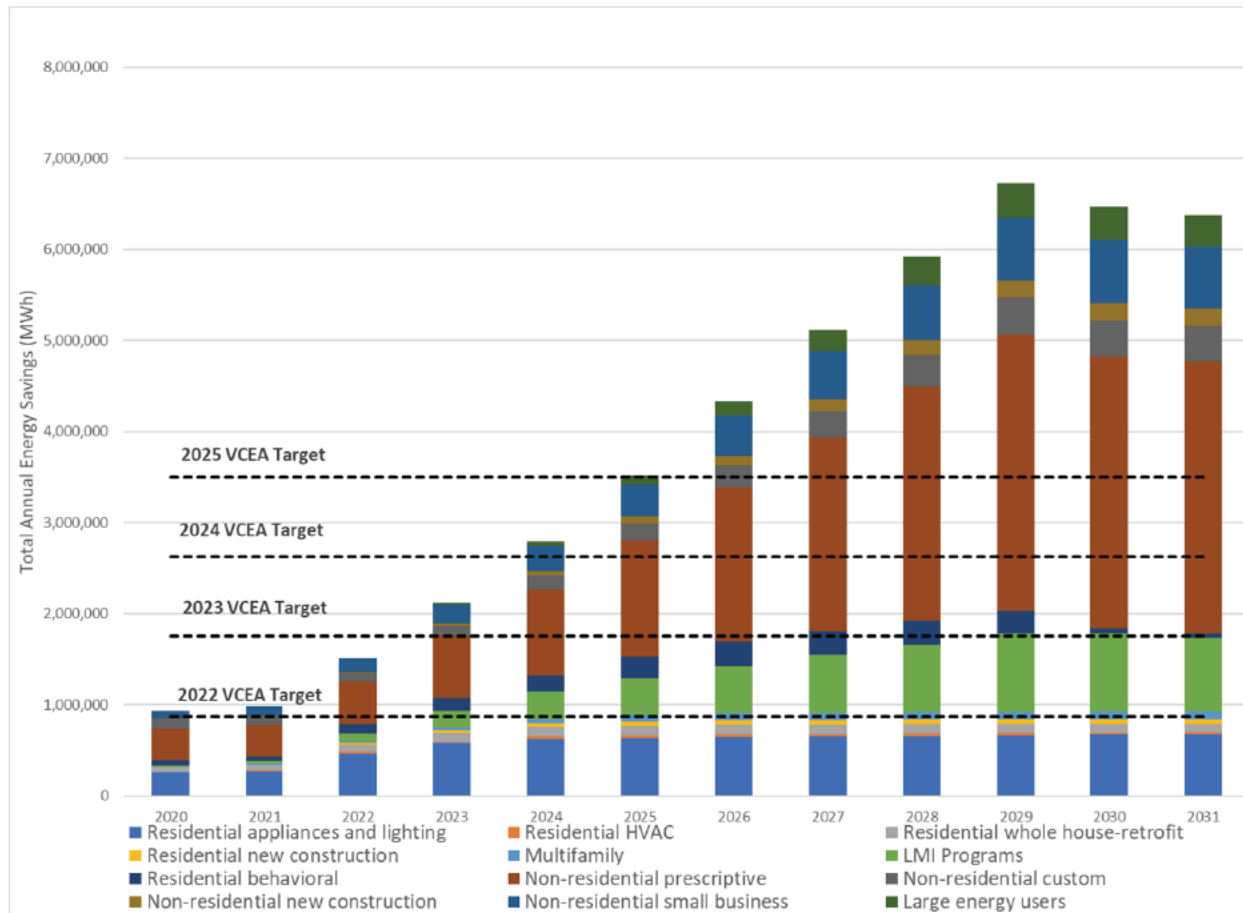
Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

We further show that much of the savings achieved from programs geared towards meeting the 2022-2025 savings requirements are likely to persist through the decade – thus targets set by the Commission for 2026 and beyond should be achievable *and* should be established at considerably higher levels than the 5.0% total annual savings expected for 2025.

These points are illustrated below in Figure 1, which represents the expected results of the “Balanced Lower Cost”⁴ scenario:

Figure 1: Example Scenario that Meets 2022-2025 VCEA Savings Targets



While the evidence provided by other large utilities gives us confidence that these results are reasonable and achievable, it is also clear that Dominion must act quickly to ramp up its program savings if it is to comply with the statute. We discuss this further below.

⁴ The four scenarios are described in greater detail below.

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

Energy Efficiency Savings Requirements

The VCEA, signed into law by Governor Northam in 2020, contains numerous provisions to accelerate Virginia's transition to clean energy, including a requirement that certain utilities achieve specified energy efficiency savings beginning in 2022. The law requires that in 2022 Dominion achieve total annual energy efficiency savings equal to at least 1.25% of its 2019 annual jurisdictional retail electric sales.⁵ In 2023 the requirement doubles to 2.5%, then increases to 3.75% in 2024, and to 5.0% in 2025. Beginning in 2026, the law provides that the SCC shall establish new energy efficiency savings targets.

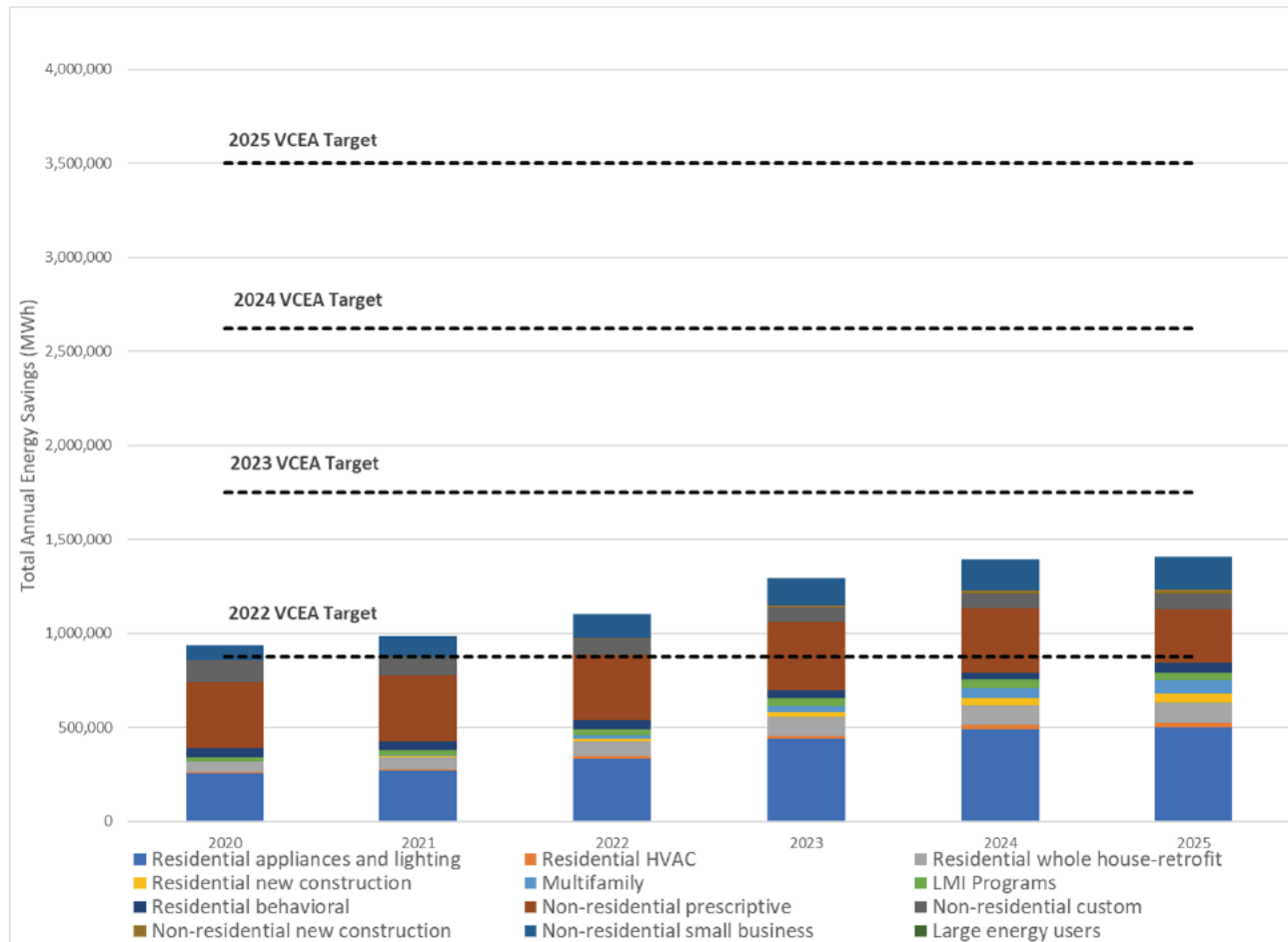
Figure 2 below is based on a scenario in which all new programs are set to "0" penetration so that only Dominion's programs that were approved prior to 2021 are modeled. It illustrates our analysis showing that if Dominion successfully implements its programs, it should achieve its 2022 VCEA saving requirement simply through the programs that were approved prior to 2021. However, it also shows that savings must be increased rapidly for the utility to achieve the savings requirement in 2023-2025. When compared with Dominion's modest portfolio of currently approved programs, achieving the VCEA requirements will demand significant increases in customer participation and a four-to-five-fold increase in incremental annual savings.⁶ This will only occur through focused planning and skillful program implementation. Because many other utilities are already implementing successful, large-scale programs, we conclude it is reasonable that Dominion can also do what is required to meet the VCEA requirements.

⁵ Total annual savings are the savings in a particular year from new measures installed in that year plus the savings still persisting from measures installed in prior years.

⁶ Incremental annual savings are the savings in a particular year **only** from new measures installed in that year. Incremental annual savings do not include savings from measures installed in earlier years that are still active.

Energy Futures Group, Inc

Figure 2: Savings from Dominion Programs Approved Prior to 2021



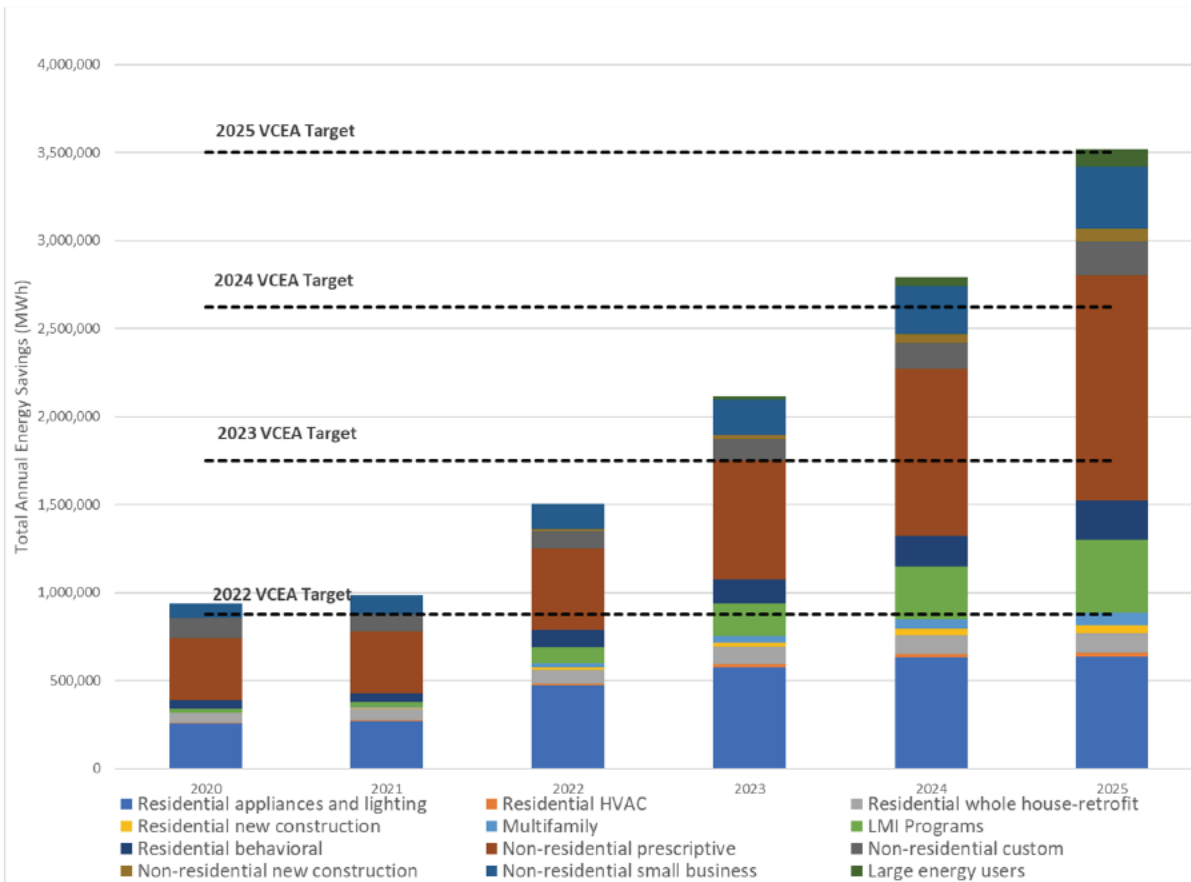
In Figure 3, we build programs up from the savings level illustrated in

Figure 2 to illustrate an example scenario in which the savings from programs approved by the SCC prior to 2021 are shown in 2020 and 2021 and then ramped up beginning in 2022 to achieve the VCEA savings requirements for 2023-2025. To ramp these programs up starting in 2022, we look to realistic program penetration rates achieved by other utilities.

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

Figure 3: Example Scenario that Meets 2022-2025 VCEA Savings



VCEA Requirements for Historically Underserved Customers

The VCEA further provides that at least 15% of the proposed costs of the Company’s energy efficiency programs “shall be allocated to programs designed to benefit low-income, elderly, or disabled individuals or veterans”⁷ (“LMI”). The Company will need to rapidly and effectively ramp up not only its residential and non-residential energy efficiency programs to meet the VCEA requirements, but it will also need to increase the scale of its proposed programs for low-income, elderly, or disabled individuals or veterans. Because the LMI requirement is framed as a percentage of total proposed portfolio spending and because it is evident that Dominion must increase overall spending to meet the VCEA savings requirements, the Company clearly will also need to propose increased LMI spending. The Pathways model checks whether the proposed LMI

⁷ SB 851, lines 1866-1867.

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

programs meet the 15% portfolio spending requirement, and each of the four sample scenarios we created complies.

Expected Results from Currently Approved Programs

Our analysis of Dominion's currently approved (through Phase VIII) energy efficiency programs suggests that the Company could meet the VCEA savings requirement in 2022 if the approved programs achieve their intended results, but it will fall far short of meeting its obligations in 2023-2025 (as shown in Figure 2). It also appears that the approved program budgets will fall short of the 15% LMI requirement. In our analysis, the Company has proposed approximately \$355 million in total portfolio spending from 2020-2025, and just under \$39 million, or 11%, for total LMI programs in the same period.⁸ Looking only at the programs that were approved prior to 2021, the Company appears poised to achieve roughly 6%-8% of its portfolio spending for LMI programs in 2022 and 2023, far short of the 15% requirement. While the LMI percent of portfolio spending increases to between 13%-15% for approved programs in 2024 and 2025, it is important to recognize that the implementation, and thus the spending, of many programs that were approved in earlier phases will be completed in those years. As a result, the overall budgets from only programs that were approved prior to 2021 are much lower than will be required to achieve the energy savings requirements. In other words, overall portfolio spending must increase to meet the savings requirements, thus LMI investments must also increase to comply with the 15% of proposed spending requirement.

II. Different Scenario Approaches and Results

Leading utilities typically rely on similar types of programs to achieve the majority of their energy efficiency savings simply because, despite regional differences in the predominance of certain savings opportunities, the electric technologies that we rely on are more similar than they are different across different utility service territories. Residential and commercial lighting and controls, industrial process and operational efficiency, heating and cooling equipment efficiency and building shell improvements, motors, refrigeration, and appliances – all of these tend to provide relevant and cost-effective savings opportunities in many parts of North America, even though the specific savings levels may vary regionally. However, while there are many similarities between utility energy efficiency approaches, individual utilities may emphasize certain program

⁸ Program budgets through Phase VIII, assuming budget is allocated equally across five implementation years.

types over others based on the specific characteristics of their customer base and the policy priorities in their jurisdictions.

Dominion can meet its VCEA energy savings requirements through a variety of combinations of different program types, with each scenario reflecting differing priorities. In this report we highlight four example scenarios, but model users can explore additional scenarios in the Excel-based tool that we created. In the model, users can toggle each program between several different penetration levels and can determine ramp-up rates and start and stop years for program implementation to illustrate the multiple pathways available to Dominion to achieve its savings requirements.

The scenarios vary in emphasis and include energy efficiency portfolios focused on:

- 1) increased opportunities for historically underserved customers (“enhanced LMI”),
- 2) high residential savings (“high residential”),
- 3) small businesses (“high small business”), and
- 4) a “balanced” portfolio that seeks to provide some opportunities to all segments while minimizing program costs (“balanced lower cost”).

Each scenario adheres to the requirements that Dominion meet its 2022-2025 VCEA savings targets as well as its 15% spending requirement on programs serving LMI customers established by the VCEA. *The four example scenarios above illustrate that Dominion can achieve its 2022-2025 VCEA targets and its spending commitment to LMI customers. Importantly, we found that if program costs for Dominion are in line with the average program costs of the comparison utilities’ portfolios, each of the four scenarios described below would also lead Dominion to comply with its Grid Transformation and Security Act (GTSA) requirement to propose at least \$870 million in energy efficiency program investments between 2018-2028.*

Below are descriptions of the four example scenarios that we modeled to illustrate how Dominion can meet its energy savings requirement while emphasizing savings for different customer segments. We illustrate the results of each of these example scenarios in Appendix B. While each scenario has a different emphasis, each includes a balanced portfolio of programs that delivers energy efficiency to multiple customer segments. In each example scenario the bulk of new programs are modeled to launch in 2022 and ramp up over several years.

1. The **enhanced LMI scenario** emphasizes programs that maximize savings for historically underserved customers and exceeds the 15% LMI spending requirement. The LMI program

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

categories included are low-income multifamily, low-income single family, and low-income low cost, which includes programs such as LED or energy efficiency kits distributed through food banks and other avenues. This scenario is achieved through high levels of savings from each of the three LMI program categories. High levels of savings for this portfolio also come from non-residential prescriptive and small business programs. Moderate levels of savings come from each of the residential programs.⁹

2. The **high residential scenario** focuses on savings achieved from residential programs that provide significant savings to families and households. This includes high levels of savings from residential HVAC, whole house retrofits, new construction, market rate multifamily, and, to some extent, appliances, and lighting (reflecting changing standards and market maturity for screw-based LED lighting). This scenario also emphasizes LMI programs. This portfolio includes moderate levels of savings from non-residential prescriptive, small business, and large energy user programs.
3. The **high small business scenario** emphasizes energy savings for small business customers, while prioritizing non-residential prescriptive programs that could also benefit small businesses. In addition to its non-residential program focus, the scenario also achieves a moderate level of savings from residential LMI programs and residential appliances, near-term lighting, and behavioral programs.
4. The **balanced lower cost portfolio** is a portfolio of programs that reflect the lower end of potential program spending necessary for Dominion to meet VCEA targets through 2025 and its LMI spending requirement. It accomplishes this by balancing moderate levels of savings through residential energy efficiency programs with high-yield non-residential programs that provide the majority of the required savings. The residential programs include moderate levels of savings through residential behavioral, appliances and near-term retail lighting, and LMI programs. The non-residential programs include a high level of savings from the non-residential prescriptive program and moderate level of savings through non-residential small business and large energy users.

In

⁹ Spending and savings targets for LMI energy efficiency programs are a starting point for measuring equity across utilities' efficiency portfolios. Utilities can also consider other metrics to ensure an equitable distribution of benefits across their portfolio. For example, researchers at the University of Michigan developed the Energy Efficiency Equity baseline (E3b) to examine differences in socioeconomic characteristics and policy approaches in each utility service territory and understand how these factors change over time. See their report to learn more: poverty.umich.edu/research-publications/policy-briefs/a-multi-state-analysis-of-equity-in-utility-sponsored-energy-efficiency-investments-for-residential-electric-customers/

Figure 4 below, we provide a comparison of the costs and savings for the comparison portfolios with the four example scenarios we created in our model in implementation year 2025. The example scenario costs are higher than the comparison portfolios for two primary reasons. First, in each of the example scenarios, residential lighting savings are dramatically reduced compared with the 2018 comparison portfolios due to the likelihood of federal standards being implemented. Second, the 15% LMI spending requirement results in greater LMI expenditures than we found with many of the comparison portfolios.

Figure 4: 2025 Program Scenarios and 2018 Comparison Utilities (Nominal 2018 \$)

Portfolio totals	First year program costs	Total Incremental annual savings (MWh)	First year \$/MWh	Weighted Average Measure Life	Incremental lifetime savings (MWh)	Levelized cost (\$/MWh) in 2025
High Residential VCEA	\$ 232,395,980	944,443	\$ 246.07	10.24	9,671,806	\$ 31.29
Balanced Lower Cost VCEA	\$ 161,889,140	924,030	\$ 175.20	9.70	8,962,107	\$ 23.24
High Small Business VCEA	\$ 193,592,982	999,061	\$ 193.78	9.97	9,956,343	\$ 25.16
Enhanced LMI VCEA	\$ 227,414,935	1,055,232	\$ 215.51	10.21	10,778,819	\$ 27.45
Entergy Arkansas	\$ 50,930,300	255,930	\$ 199.00	14.74	3,772,407	\$ 19.40
MidAmerican Energy	\$ 63,804,277	322,760	\$ 197.68	13.60	4,389,538	\$ 20.38
Xcel Minnesota	\$ 107,451,885	565,220	\$ 190.11	12.80	7,234,811	\$ 20.46
Baltimore Gas and Electric	\$ 114,626,581	616,559	\$ 185.91	10.10	6,227,249	\$ 23.89
Consumers Energy	\$ 117,838,710	641,648	\$ 183.65	11.72	7,520,118	\$ 21.08
Ameren Missouri	\$ 66,483,135	364,080	\$ 182.61	11.25	4,095,898	\$ 21.61
Commonwealth Edison	\$ 352,988,361	2,064,720	\$ 170.96	9.90	20,440,728	\$ 22.31
DTE Electric	\$ 127,955,350	777,405	\$ 164.59	12.60	9,795,299	\$ 17.92
Duke Energy Carolinas	\$ 128,422,575	858,096	\$ 149.66	8.20	7,036,387	\$ 22.69
AEP Ohio	\$ 62,864,638	467,385	\$ 134.50	12.02	5,617,973	\$ 15.16
Duke Energy Ohio	\$ 32,134,301	292,107	\$ 110.01	9.31	2,719,521	\$ 15.07
First Energy Ohio	\$ 30,597,049	286,819	\$ 106.68	11.25	3,226,709	\$ 12.63

Each of the four scenarios illustrates a different approach that Dominion could use to meet its 2022-2025 energy savings targets within cost parameters that are consistent with comparison utilities.¹⁰ Beyond 2025, the scenarios show the potential for Dominion to achieve significant continued savings through 2030.

III. Savings Opportunities Beyond 2025

The VCEA calls for the Commission to assign savings requirements for the utilities after the current 2022-2025 period that is prescribed in statute. Utility programs, including those of many

¹⁰ Note that the 15% LMI spending requirement leads to higher overall portfolio costs than are representative of the comparison portfolios. The scenario modeling also reflects an end to retail efficient LED bulb promotions after 2023, based on assumed market maturity and implementation of federal lighting efficiency standards.

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | 802-482-5001 | 802-329-2143 | info@energyfuturesgroup.com

if not all of the comparison utilities, are operated on a multi-year basis, and energy savings opportunities will continue to exist for Dominion and its customers well beyond 2025. The model we developed allows the user to set start and end years for each base program, and we assumed that Dominion would ramp up energy efficiency programming at a rate necessary to meet the VCEA requirements – likely somewhere between 1.0%-1.5% incremental annual savings as a percent of sales on an ongoing basis. This level of savings is achievable, based on the accomplishments of the comparison utilities we used as the basis for our modeled results. Doing so would lead to significant bill savings for Virginians, improved economic conditions for customers, and would support reduced climate damage due to inefficient energy use.

By definition, maximizing the implementation of cost-effective energy efficiency reduces the Company's costs to meet its primary mandate: providing safe and reliable energy. Investments in energy efficiency can reduce the need for expensive infrastructure investments – costs which are ultimately borne by customers. When energy efficiency can make generation, transmission, and distribution investments unnecessary, or even when it can defer those investments for a period of time, it becomes a critical component of the Company's resource and investment management. For this reason, the VCEA calls for the Commission to determine future goals for Dominion. Our model suggests that there will continue to be ample opportunity for the Company to aggressively pursue energy efficiency goals, thus supporting its ability to meet its primary obligation at the lowest cost to customers.

IV. Conclusion

Our review of the program pathways used by a dozen comparably-sized utility energy efficiency providers, and the application of modeling based on their reported results, shows that Dominion can reasonably achieve the VCEA savings requirements with the timely, effective implementation of best-practice energy efficiency programs. Currently approved programs, should the Company achieve its planned savings, will only carry it towards its 2022 VCEA savings requirement. To meet savings requirements for 2023 and beyond, Dominion will need to aggressively increase its savings from energy efficiency programs. Dominion can pursue a variety of program and portfolio options, but it must act in the near term to begin ramping up such programs in order to meet its 2023-2025 savings obligations and maximize benefits for all Virginians. Dominion can continue to work with its stakeholders to identify program opportunities while also focusing on identifying and implementing expansion of the key programs that will drive savings results to meet its VCEA requirements.

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

Appendix A – Methodology

In order to assess the implications of different combinations of programs and savings levels for Dominion to achieve its VCEA targets, we created an Excel-based modeling tool. The tool incorporates savings and costs from Dominion's currently proposed and approved programs (through Phase VIII), as well as data from comparison utilities used to ground the model in realistic savings opportunities. We developed four example scenarios with varying levels of emphasis on specific program categories to illustrate how Dominion can meet its energy savings targets. Model users can develop new scenarios to further explore program emphases that align with their priorities.

The first step in the process of developing the model was to identify the common energy efficiency program types from which program administrators achieve most of their portfolio savings. Without attempting to model detailed specific program designs, we use these "base programs" to illustrate where Dominion would most reasonably focus its efforts to achieve the majority of its savings in the proposed scenarios. After receiving feedback from the core project team and from experts at EFG, we identified 12 base program categories. For residential programs, the base programs were appliances and lighting, HVAC, whole house-retrofit, new construction, multifamily (cross-cutting residential and commercial), low-income, and behavioral. We further divided the low-income category into single-family, multi-family, and low-income low cost. Non-residential base program categories included non-residential prescriptive, custom, new construction, small business, and large energy users. Note that while the model includes an appliances and lighting base program, historically the vast majority of savings in these program types have come from the promotion of efficient lightbulbs at retail locations. Given the likelihood of federal lighting standards implementation, and the inevitability of transformation in screw-based standard lighting, we recommend that any future use of the model to develop additional scenarios assume a very limited implementation time frame for retail lighting – if any at all – consistent with the approach we used.

We then mapped Dominion's current and proposed programs to the base program categories. We consulted the core project team for this step. Dominion's current and proposed programs served as an input for savings through 2025 in the model – the last implementation year for which the programs are currently approved.

In order to develop realistic scenarios for Dominion to achieve its VCEA targets, the model needed to include savings, costs, and average measure life data from similar utilities. We selected 12 comparison utilities achieving at least one percent incremental annual savings in relatively similar geographies, including utilities located in the Southeast or Midwest. These include AEP

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

Ohio, Ameren Missouri, Baltimore Gas and Electric, Commonwealth Edison, Consumers Energy, Duke Energy Carolinas, DTE Electric, Duke Energy Ohio, Entergy Arkansas, MidAmerican Energy, First Energy Ohio, and Xcel Minnesota. Data for each utility come from their 2018 DSM annual reports.

We used the comparison portfolios to develop inputs for the model. First, we mapped each utility program to base program categories in order to easily create unified metrics. Programs that could not clearly be mapped to the base programs were not included, as our intent was not to represent all available program types, but rather to focus on the kinds of programs that large utilities have typically used to achieve high savings levels. Using reported program data available through the utilities' 2018 DSM annual reports, we determined savings, costs, and average useful measure life (when available) for each utility. We used sales data from the 2018 EIA Annual Electric Power Industry Report¹¹ to calculate savings as a percent of sector MWh sales for each base program for each utility. We used net savings where those were reported by the utilities and converted reported gross savings to net savings using the 83.1% default net to gross ratio that ACEEE calculated in its 2020 Utility Scorecard.¹² By dividing reported program costs by reported net annual MWh savings, we calculated costs per first year MWh saved. We also collected data from the comparison utilities' 2018 DSM annual reports for weighted average useful measure life ("EUL") by program for utilities that report this metric. Where EUL data were not specifically provided but lifecycle savings were reported in addition to annual savings, we used those data to calculate the EUL by program.

We then compiled the data from the comparison utilities and averaged them for each of the metrics (savings, costs, and average measure life) by base program to determine inputs for the model. We used the percentage of sectors sales for each base program as the input for penetration rates in the model scenarios. The average of percent sector sales across utilities served as the medium penetration rate for that base program. High penetration rate is the average of the three highest sector sales percentages, and the low penetration rate is the average of the three lowest. Costs for each base program are the average of all costs per MWh from the comparison utilities after we removed outliers from the calculation.¹³ We calculated the average

¹¹ U.S. Energy Information Administration, *Annual Electric Power Industry Report, Form EIA-861 detailed data files*, accessed October 28, 2020, www.eia.gov/electricity/data/eia861/.

¹² ACEEE 2020 Utility Scorecard, p.10. www.aceee.org/research-report/u2004.

¹³ Not all of the comparison utilities implemented programs that could be clearly mapped to our base program categories, and in some cases the range of program costs for the comparison utilities was large. Presumably, this

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

measure life for each base program by taking the average of all comparison utilities reporting this metric.

We created an Excel-based modeling tool that projects multi-year total portfolio energy savings by summing savings from the base programs and the savings from Dominion's approved and proposed programs. The model allows users to alter inputs for certain variables (penetration rate, ramp up period, and start/end date) that will change the level of savings achieved from the base programs (within given parameters) to calculate multi-year energy savings. We built protections into the model to limit users' ability to develop scenarios that are not grounded in the empirical evidence provided by the comparison portfolios. For example, a user cannot create a scenario with base programs above the high penetration rate – even though it might be possible for a utility to achieve that higher level of savings. High penetration rate is not meant to represent a maximum achievable scenario; rather, it is intended to represent a savings level for which there is a high level of confidence in its achievability, based on the performance of the three highest performing utilities in our comparison for each base program. The input table from the model is illustrated below in Figure 5:

is primarily because of differences in implementation strategies. To reduce the likelihood of using costs in the model that were skewed by less representative programs, the high and low outlier costs were not included in the determination of average.

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

Figure 5: Model Input Selection

Inputs - Start Here				
	Penetration rate	Ramp up years	Start year	End year
Residential appliances and lighting	MED	2	2022	2023
Residential HVAC	LOW	4	2022	2030
Residential whole house-retrofit	MED	4	2022	2030
Residential new construction	LOW	4	2024	2030
Multifamily	MED	4	2022	2030
Residential behavioral	MED	4	2022	2030
Non-residential prescriptive	HIGH	4	2022	2030
Non-residential custom	LOW	4	2022	2030
Non-residential new construction	LOW	4	2022	2030
Non-residential small business	MED	4	2022	2030
Large energy users	MED	4	2023	2030
LMI Programs:				
Low-income multifamily	MED	2	2022	2030
Low-income single family	MED	2	2022	2030
Low-income low-cost	MED	2	2022	2030

The modeling tool allows the user to change four variables for each base program to create new portfolio scenarios: penetration rate, ramp up period, year of program start, and end year of each program. Penetration rate is the level of uptake of a program, represented by a percent of Dominion's sector sales. The options for input for penetration rate are zero, low, medium, and high. Each option represents a specified level of savings as a percent of sector sales and reflects the range of program achievement by comparable utilities and program administrators. The ramp up period describes the period of time a program requires to reach its full incremental annual savings level. The ramp up of savings increases linearly, and the input can be between one to five years. The start year and end year of each program define a program's implementation life, indicating how long a new program will achieve incremental annual savings. New proposed programs will start in or after 2022 and their savings are added to those expected to occur as a result of Dominion's programs that were approved prior to 2021. The model will project new incremental annual and total annual savings through 2031, to incorporate 10 years of savings from 2022, when the first modeled programs are implemented.

Once the model reflected the inputs of both Dominion's Category 1 programs and the metrics from the comparison portfolios, we developed scenarios to illustrate pathways for Dominion to meet the VCEA targets. EFG consulted the core project team to create a list of scenarios most useful for Dominion and Virginia stakeholders. We developed the following scenarios: balanced

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | 802-482-5001 | 802-329-2143 | info@energyfuturesgroup.com

lower cost, enhanced LMI, high residential, and high small business. These scenarios reflect varying emphasis on specific base programs. The enhanced LMI scenario, for example, places an emphasis on low-income programs and results in a spending more than the required 15 percent on LMI programs. Through each of these scenarios, Dominion could achieve its VCEA targets and LMI spending requirement.

The model indicates whether the inputs reflect a scenario in which Dominion would achieve its 2022-2025 targets and illustrates incremental annual savings and total annual savings in future years through 2031. The model also includes costs output, a determination of whether Dominion would meet the 15 percent LMI spending requirement in the scenario, and a comparison of the levelized costs in program implementation year 2025 of the user-created scenario to the levelized costs of the four example scenarios and the comparison utilities' 2018 reported portfolio results.¹⁴

¹⁴ Comparison utility data for the Cost Comparison tab were taken from ACEEE 2020 Utility Scorecard, Appendix B.

Table 1: Base Program \$/First Year MWh Saved. Pink cells denote outliers

	AEP Ohio	Ameren Missouri	Baltimore Gas and Electric (BGE)	Commonwealth Edison (ComEd)	Consumers Energy	Duke Energy Carolinas (DEC)	DTE Electric	Duke Energy Ohio	Entergy Arkansas	MidAmerican Energy	First Energy Ohio	Xcel Minnesota	Average	Average - outliers removed
Residential appliances and lighting	\$ 136.49	\$ 202.91	\$ 146.39	\$ 165.01	\$ 148.77	\$ 222.59	\$ 124.78	\$ 112.18	\$ 215.86	\$ 201.09	\$ 106.62	\$ 58.21	\$ 153.41	\$ 151.17
Residential HVAC		\$ 233.06	\$ 945.19	\$ 735.04	\$ 322.36	\$ 1,030.96	\$ 392.09		\$ 188.08			\$ 516.17	\$ 545.37	\$ 538.28
Residential whole house-retrofit			\$ 681.35	\$ 393.34	\$ 665.94	\$ 366.40	\$ 356.60	\$ 405.80	\$ 314.29	\$ 708.19		\$ 1,901.08	\$ 643.67	\$ 511.09
Residential new construction	\$ 504.28		\$ 656.84	\$ 1,685.63	\$ 825.41		\$ 570.26			\$ 406.75		\$ 268.15	\$ 702.47	\$ 592.71
Multifamily					\$ 425.96	\$ 168.70	\$ 202.40		\$ 111.91	\$ 559.04		\$ 357.78	\$ 304.30	\$ 288.71
Low-income multifamily			\$ 2,782.80	\$ 1,313.59	\$ 474.03		\$ 2,377.95					\$ 2,878.35	\$ 1,965.34	\$ 2,189.96
Low-income single family			\$ 6,834.55	\$ 3,720.77	\$ 407.62	\$ 1,240.54	\$ 1,141.91	\$ 1,172.11				\$ 858.95	\$ 2,196.64	\$ 1,626.86
Low-income low-cost				\$ 118.42									\$ 118.42	\$ 118.42
Residential behavioral	\$ 18.64		\$ 31.97	\$ 19.04	\$ 31.32	\$ 41.24	\$ 76.80	\$ 43.37		\$ 50.76		\$ 112.81	\$ 47.33	\$ 42.07
Non-residential prescriptive	\$ 120.35	\$ 136.30	\$ 274.86	\$ 138.78		\$ 150.98	\$ 82.54	\$ 128.33	\$ 172.01	\$ 180.29	\$ 106.31	\$ 129.93	\$ 147.33	\$ 140.36
Non-residential custom	\$ 103.43	\$ 152.41	\$ 429.07	\$ 340.34	\$ 180.47	\$ 205.38	\$ 159.48	\$ 136.06	\$ 326.48	\$ 235.09		\$ 133.22	\$ 218.31	\$ 207.66
Non-residential new construction	\$ 160.33	\$ 119.96		\$ 340.26						\$ 126.56		\$ 227.55	\$ 194.93	\$ 171.48
Non-residential small business	\$ 286.34	\$ 225.51	\$ 503.25	\$ 267.72	\$ 265.32	\$ 200.22		\$ 249.54	\$ 267.11		\$ 101.00		\$ 262.89	\$ 251.68
Large energy users	\$ 128.89			\$ 208.28								\$ 121.06	\$ 152.74	\$ 152.74

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | 802-482-5001 | 802-329-2143 | info@energyfuturesgroup.com

Table 2: Base Program Savings % of Sector Sales

	AEP Ohio	Ameren Missouri	Baltimore Gas and Electric (BGE)	Commonwealth Edison (ComEd)	Consumers Energy	Duke Energy Carolinas (DEC)	DTE Electric	Duke Energy Ohio	Entergy Arkansas	MidAmerican Energy	First Energy Ohio	Xcel Minnesota	Average	Average Highest 3	Average Lowest 3
Residential appliances and lighting	0.7728%	0.1046%	0.8594%	1.2952%	0.7664%	0.6773%	1.1614%	1.2657%	0.4491%	0.9451%	1.2988%	1.4526%	0.9207%	1.3489%	0.4104%
Residential HVAC		0.3459%	0.0642%	0.0357%	0.0692%	0.0228%	0.0824%		0.1425%			0.1613%	0.1155%	0.2166%	0.0409%
Residential whole house-retrofit			0.4440%	0.0857%	0.0415%	0.0261%	0.0232%	0.0357%	0.3850%	0.0678%		0.0039%	0.1237%	0.3049%	0.0177%
Residential new construction	0.0371%		0.0426%	0.0008%	0.0042%		0.0519%			0.0512%		0.0299%	0.0311%	0.0486%	0.0116%
Multifamily			0.0222%	0.0417%	0.0573%	0.0721%	0.0172%		0.0578%	0.1243%		0.0216%	0.0518%	0.0847%	0.0203%
Low-income multifamily			0.0028%	0.0314%	0.0287%		0.0072%					0.0042%	0.0149%	0.0225%	0.0048%
Low-income single family			0.0072%	0.0107%	0.0773%	0.0176%	0.0206%	0.0050%				0.0173%	0.0223%	0.0385%	0.0076%
Low-income low-cost				0.3434%									0.3434%		
Residential behavioral	0.4921%		1.4611%	0.9916%	0.3163%	1.0847%	0.3930%	1.1146%		0.5349%		0.1647%	0.7281%	1.2202%	0.2914%
Non-residential prescriptive	0.7950%	0.8773%	0.8074%	0.7887%		0.3603%	0.7618%	0.8252%	0.0933%	0.6985%	0.2979%	1.7637%	0.7336%	1.1554%	0.2505%
Non-residential custom	0.2461%	0.4372%	0.7142%	0.0757%	1.2369%	0.0655%	0.3530%	0.3165%	0.8756%	1.6953%		1.0480%	0.6422%	1.3268%	0.1291%
Non-residential new construction	0.1749%	0.0963%		0.0366%						0.7798%		0.4908%	0.3157%	0.6353%	0.0665%
Non-residential small business	0.0954%	0.0751%	0.1300%	0.3410%	0.2269%	0.1568%		0.1782%	0.1317%		0.4987%		0.2038%	0.3555%	0.1002%
Large energy users	0.1147%			0.0528%								0.3991%	0.1889%	0.3991%	0.0528%

Appendix B – Four Example Scenarios

Figure 6: Enhanced LMI Scenario Inputs and Outputs

	Penetration rate	Ramp up years	Start year	End year		
Residential appliances and lighting	MED	2	2022	2023		
Residential HVAC	MED	4	2022	2030		
Residential whole house-retrofit	MED	4	2022	2030		
Residential new construction	MED	4	2024	2030		
Multifamily	MED	4	2022	2030		
Residential behavioral	MED	4	2022	2030		
Non-residential prescriptive	HIGH	4	2022	2030		
Non-residential custom	LOW	4	2022	2030		
Non-residential new construction	LOW	4	2022	2030		
Non-residential small business	HIGH	4	2022	2030		
Large energy users	MED	4	2023	2030		
LMI Programs:						
Low-income multifamily	HIGH	2	2022	2030		
Low-income single family	HIGH	2	2022	2030		
Low-income low-cost	HIGH	2	2022	2030		
Outputs	2020	2021	2022	2023	2024	2025
Total Incremental annual savings	0.23%	0.07%	0.80%	1.05%	1.25%	1.42%
Total annual savings as a % of 2019 Retail Sales	1.34%	1.41%	2.21%	3.18%	4.29%	5.52%
VCEA Savings Targets	-	-	1.25%	2.50%	3.75%	5.00%
Target met?	-	-	Yes	Yes	Yes	Yes
LMI 15% cost requirement met?	-	-	Yes	Yes	Yes	Yes
LMI total annual savings as a % of total portfolio savings	2.21%	2.55%	6.03%	8.60%	10.54%	11.28%

Figure 7: Enhanced LMI Scenario Savings

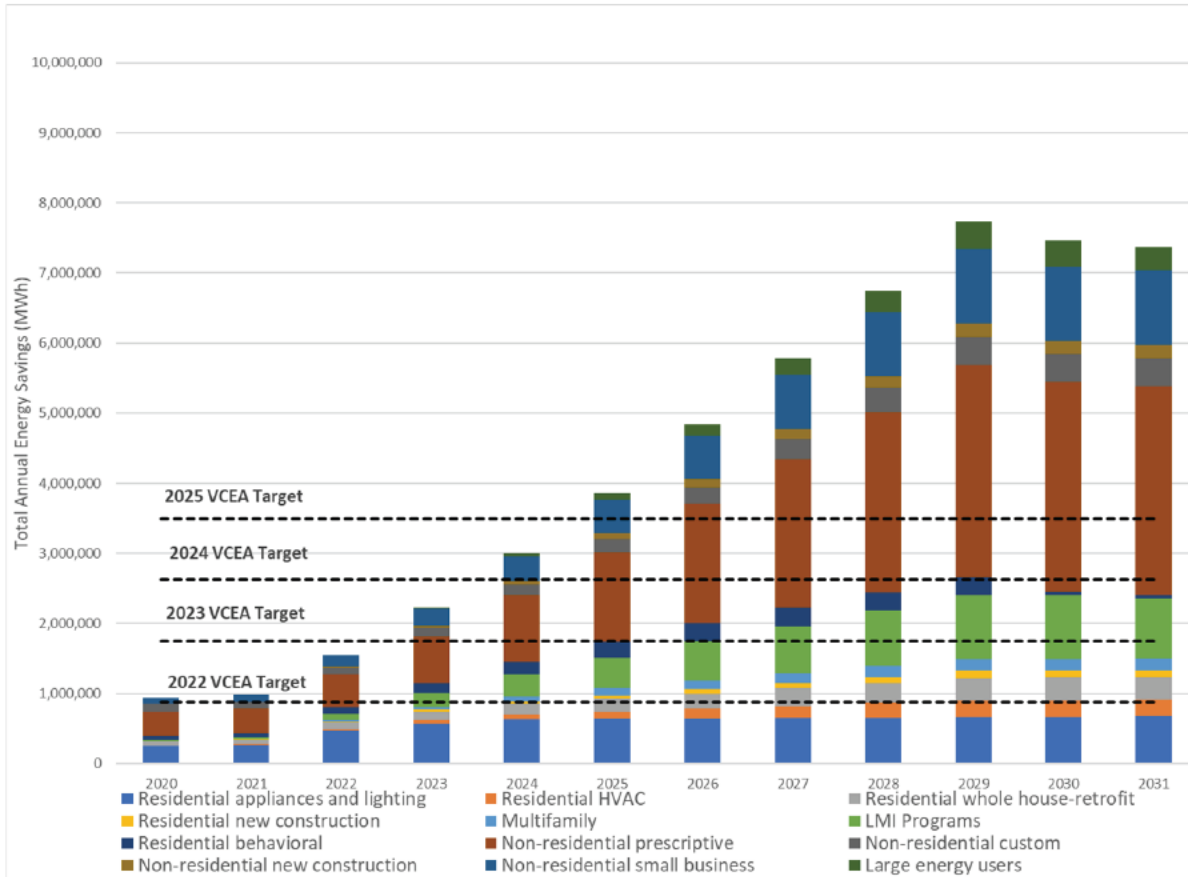


Figure 8: Enhanced LMI Scenario Costs through 2025

	2020	2021	2022	2023	2024	2025
Residential appliances and lighting	\$ 9,820,000	\$ 11,960,000	\$ 32,718,380	\$ 11,960,000	\$ 2,140,000	\$ 2,140,000
Residential HVAC	\$ 33,820,000	\$ 33,820,000	\$ 6,036,061	\$ 9,513,106	\$ 11,590,152	\$ 15,067,198
Residential whole house-retrofit	\$ 4,680,000	\$ 6,920,000	\$ 11,632,796	\$ 15,167,393	\$ 14,021,990	\$ 17,556,587
Residential new construction	\$ -	\$ 7,200,000	\$ 7,200,000	\$ 7,200,000	\$ 8,574,806	\$ 9,605,910
Multifamily	\$ -	\$ 2,920,000	\$ 5,208,501	\$ 6,924,877	\$ 8,641,253	\$ 10,357,629
LMI Programs	\$ 9,300,000	\$ 13,360,000	\$ 26,801,255	\$ 38,171,883	\$ 49,542,511	\$ 49,542,511
Residential behavioral	\$ 1,860,000	\$ 1,860,000	\$ 4,144,476	\$ 5,857,834	\$ 7,571,191	\$ 7,424,548
Non-residential prescriptive	\$ 12,040,000	\$ 14,140,000	\$ 30,427,087	\$ 35,442,403	\$ 42,817,718	\$ 55,033,033
Non-residential custom	\$ -	\$ -	\$ 2,691,745	\$ 4,710,554	\$ 6,729,363	\$ 8,748,172
Non-residential new construction	\$ -	\$ 3,020,000	\$ 4,164,931	\$ 5,023,629	\$ 5,882,328	\$ 6,741,026
Non-residential small business	\$ 7,180,000	\$ 11,240,000	\$ 15,525,664	\$ 22,264,912	\$ 26,524,160	\$ 33,263,408
Large energy users	\$ -	\$ -	\$ -	\$ 4,773,965	\$ 8,354,440	\$ 11,934,914
Total cost (\$/year)	\$ 78,700,000	\$ 106,440,000	\$ 146,550,897	\$ 167,010,557	\$ 192,389,911	\$ 227,414,935

Figure 9: High Residential Scenario Inputs and Outputs

	Penetration rate	Ramp up years	Start year	End year		
Residential appliances and lighting	MED	2	2022	2023		
Residential HVAC	HIGH	4	2022	2030		
Residential whole house-retrofit	HIGH	4	2022	2030		
Residential new construction	HIGH	4	2024	2030		
Multifamily	HIGH	4	2022	2030		
Residential behavioral	MED	4	2022	2030		
Non-residential prescriptive	MED	4	2022	2030		
Non-residential custom	LOW	4	2022	2030		
Non-residential new construction	LOW	4	2022	2030		
Non-residential small business	MED	4	2022	2030		
Large energy users	MED	4	2023	2030		
LMI Programs:						
Low-income multifamily	MED	2	2022	2030		
Low-income single family	HIGH	2	2022	2030		
Low-income low-cost	MED	2	2022	2030		
Outputs	2020	2021	2022	2023	2024	2025
Total Incremental annual savings	0.23%	0.07%	0.75%	0.96%	1.12%	1.26%
Total annual savings as a % of 2019 Retail Sales	1.34%	1.41%	2.16%	3.05%	4.03%	5.10%
VCEA Savings Targets	-	-	1.25%	2.50%	3.75%	5.00%
Target met?	-	-	Yes	Yes	Yes	Yes
LMI 15% cost requirement met?			Yes	Yes	Yes	Yes
LMI total annual savings as a % of total portfolio savings	2.21%	2.55%	6.10%	8.86%	11.04%	12.01%

Figure 10: High Residential Scenario Savings

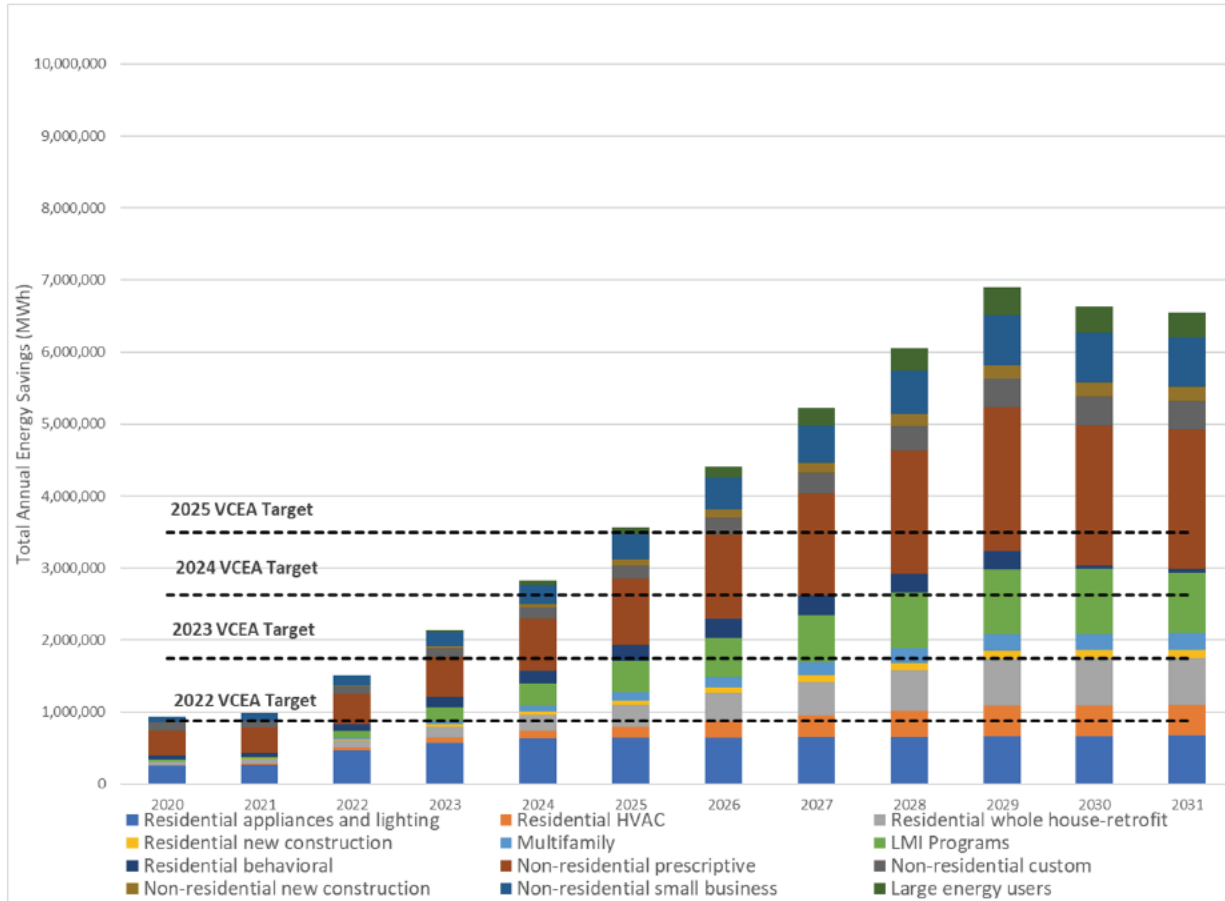


Figure 11: High Residential Scenario Costs through 2025

	2020	2021	2022	2023	2024	2025
Residential appliances and lighting	\$ 9,820,000	\$ 11,960,000	\$ 32,718,380	\$ 11,960,000	\$ 2,140,000	\$ 2,140,000
Residential HVAC	\$ 33,820,000	\$ 33,820,000	\$ 10,093,604	\$ 16,613,807	\$ 21,734,010	\$ 28,254,213
Residential whole house-retrofit	\$ 4,680,000	\$ 6,920,000	\$ 18,540,453	\$ 27,255,794	\$ 31,291,134	\$ 40,006,474
Residential new construction	\$ -	\$ 7,200,000	\$ 7,200,000	\$ 7,200,000	\$ 9,346,151	\$ 10,955,765
Multifamily	\$ -	\$ 2,920,000	\$ 6,664,752	\$ 9,473,315	\$ 12,281,879	\$ 15,090,443
LMI Programs	\$ 9,300,000	\$ 13,360,000	\$ 24,327,924	\$ 34,461,887	\$ 44,595,849	\$ 44,595,849
Residential behavioral	\$ 1,860,000	\$ 1,860,000	\$ 4,144,476	\$ 5,857,834	\$ 7,571,191	\$ 7,424,548
Non-residential prescriptive	\$ 12,040,000	\$ 14,140,000	\$ 24,480,440	\$ 25,035,769	\$ 27,951,099	\$ 35,706,429
Non-residential custom	\$ -	\$ -	\$ 2,691,745	\$ 4,710,554	\$ 6,729,363	\$ 8,748,172
Non-residential new construction	\$ -	\$ 3,020,000	\$ 4,164,931	\$ 5,023,629	\$ 5,882,328	\$ 6,741,026
Non-residential small business	\$ 7,180,000	\$ 11,240,000	\$ 11,690,200	\$ 15,552,849	\$ 16,935,499	\$ 20,798,149
Large energy users	\$ -	\$ -	\$ -	\$ 4,773,965	\$ 8,354,440	\$ 11,934,914
Total cost (\$/year)	\$ 78,700,000	\$ 106,440,000	\$ 146,716,905	\$ 167,919,404	\$ 194,812,942	\$ 232,395,980

Figure 12: High Small Business Scenario Inputs and Outputs

	Penetration rate	Ramp up years	Start year	End year		
Residential appliances and lighting	MED	2	2022	2023		
Residential HVAC	LOW	4	2022	2030		
Residential whole house-retrofit	LOW	4	2022	2030		
Residential new construction	LOW	4	2024	2030		
Multifamily	LOW	4	2022	2030		
Residential behavioral	MED	4	2022	2030		
Non-residential prescriptive	HIGH	4	2022	2030		
Non-residential custom	LOW	4	2022	2030		
Non-residential new construction	LOW	4	2022	2030		
Non-residential small business	HIGH	4	2022	2030		
Large energy users	MED	4	2023	2030		
LMI Programs:						
Low-income multifamily	MED	2	2022	2030		
Low-income single family	HIGH	2	2022	2030		
Low-income low-cost	MED	2	2022	2030		
Outputs	2020	2021	2022	2023	2024	2025
Total Incremental annual savings	0.23%	0.07%	0.78%	1.01%	1.18%	1.34%
Total annual savings as a % of 2019						
Retail Sales	1.34%	1.41%	2.19%	3.12%	4.17%	5.31%
VCEA Savings Targets	-	-	1.25%	2.50%	3.75%	5.00%
Target met?	-	-	Yes	Yes	Yes	Yes
LMI 15% cost requirement met?			Yes	Yes	Yes	Yes
LMI total annual savings as a % of total portfolio savings	2.21%	2.55%	6.03%	8.66%	10.69%	11.53%

Figure 13: High Small Business Scenario Savings

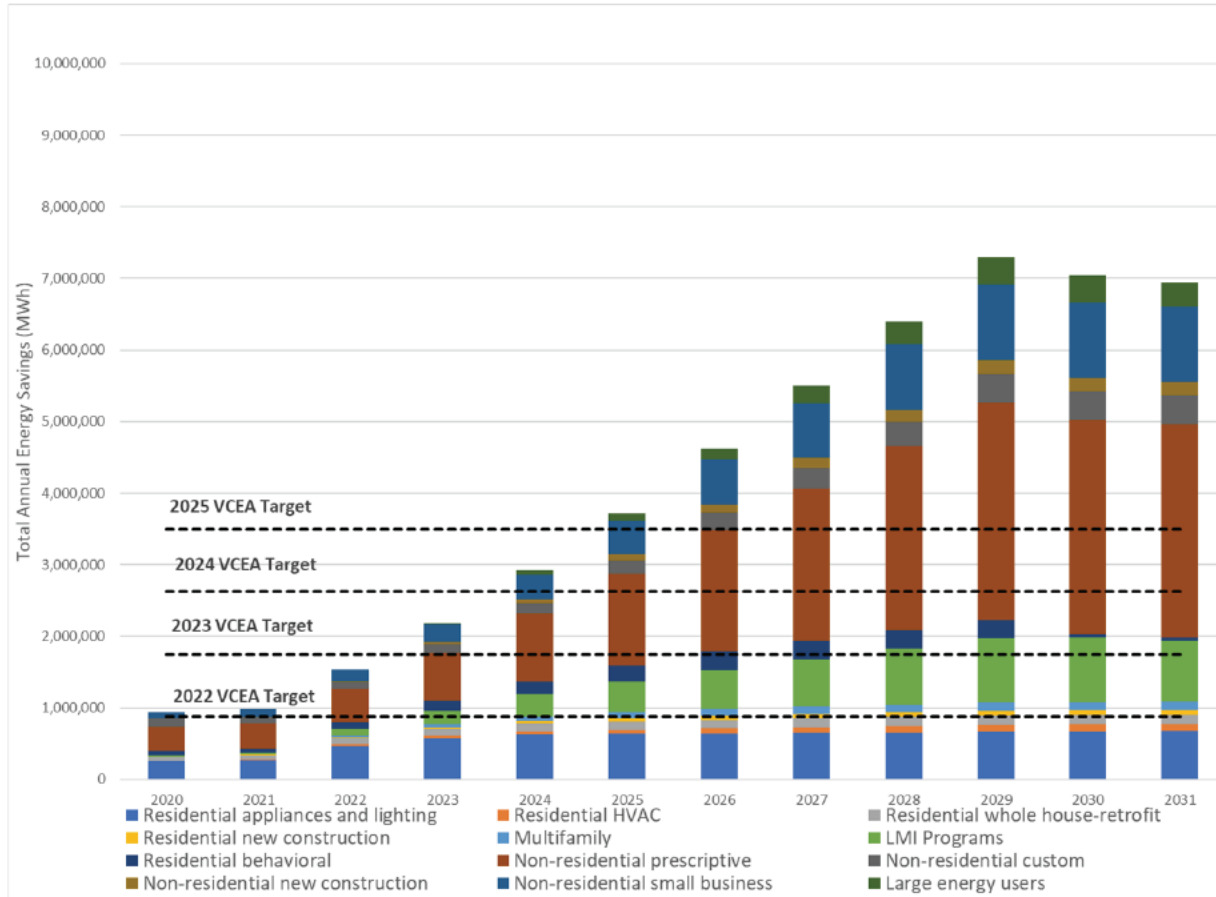


Figure 14: High Small Business Scenario Costs through 2025

	2020	2021	2022	2023	2024	2025
Residential appliances and lighting	\$ 9,820,000	\$ 11,960,000	\$ 32,718,380	\$ 11,960,000	\$ 2,140,000	\$ 2,140,000
Residential HVAC	\$ 33,820,000	\$ 33,820,000	\$ 3,041,287	\$ 4,272,252	\$ 4,103,217	\$ 5,334,182
Residential whole house-retrofit	\$ 4,680,000	\$ 6,920,000	\$ 7,595,929	\$ 8,102,876	\$ 3,929,822	\$ 4,436,769
Residential new construction	\$ -	\$ 7,200,000	\$ 7,200,000	\$ 7,200,000	\$ 7,714,829	\$ 8,100,951
Multifamily	\$ -	\$ 2,920,000	\$ 3,818,502	\$ 4,492,378	\$ 5,166,254	\$ 5,840,130
LMI Programs	\$ 9,300,000	\$ 13,360,000	\$ 24,327,924	\$ 34,461,887	\$ 44,595,849	\$ 44,595,849
Residential behavioral	\$ 1,860,000	\$ 1,860,000	\$ 4,144,476	\$ 5,857,834	\$ 7,571,191	\$ 7,424,548
Non-residential prescriptive	\$ 12,040,000	\$ 14,140,000	\$ 30,427,087	\$ 35,442,403	\$ 42,817,718	\$ 55,033,033
Non-residential custom	\$ -	\$ -	\$ 2,691,745	\$ 4,710,554	\$ 6,729,363	\$ 8,748,172
Non-residential new construction	\$ -	\$ 3,020,000	\$ 4,164,931	\$ 5,023,629	\$ 5,882,328	\$ 6,741,026
Non-residential small business	\$ 7,180,000	\$ 11,240,000	\$ 15,525,664	\$ 22,264,912	\$ 26,524,160	\$ 33,263,408
Large energy users	\$ -	\$ -	\$ -	\$ 4,773,965	\$ 8,354,440	\$ 11,934,914
Total cost (\$/year)	\$ 78,700,000	\$ 106,440,000	\$ 135,655,925	\$ 148,562,689	\$ 165,529,170	\$ 193,592,982

Figure 15: Balanced Lower Cost Scenario Inputs and Outputs

	Penetration rate	Ramp up years	Start year	End year		
Residential appliances and lighting	MED	2	2022	2023		
Residential HVAC	ZERO	4	2022	2030		
Residential whole house-retrofit	ZERO	4	2022	2030		
Residential new construction	ZERO	4	2024	2030		
Multifamily	ZERO	4	2022	2030		
Residential behavioral	MED	4	2022	2030		
Non-residential prescriptive	HIGH	4	2022	2030		
Non-residential custom	LOW	4	2022	2030		
Non-residential new construction	LOW	4	2022	2030		
Non-residential small business	MED	4	2022	2030		
Large energy users	MED	4	2023	2030		
LMI Programs:						
Low-income multifamily	MED	2	2022	2030		
Low-income single family	MED	2	2022	2030		
Low-income low-cost	MED	2	2022	2030		
Outputs	2020	2021	2022	2023	2024	2025
Total Incremental annual savings	0.23%	0.07%	0.75%	0.95%	1.10%	1.23%
Total annual savings as a % of 2019						
Retail Sales	1.34%	1.41%	2.15%	3.03%	3.99%	5.03%
VCEA Savings Targets	-	-	1.25%	2.50%	3.75%	5.00%
Target met?	-	-	Yes	Yes	Yes	Yes
LMI 15% cost requirement met?			Yes	Yes	Yes	Yes
LMI total annual savings as a % of total portfolio savings	2.21%	2.55%	5.96%	8.63%	10.77%	11.73%

Figure 16: Balanced Lower Cost Scenario Savings

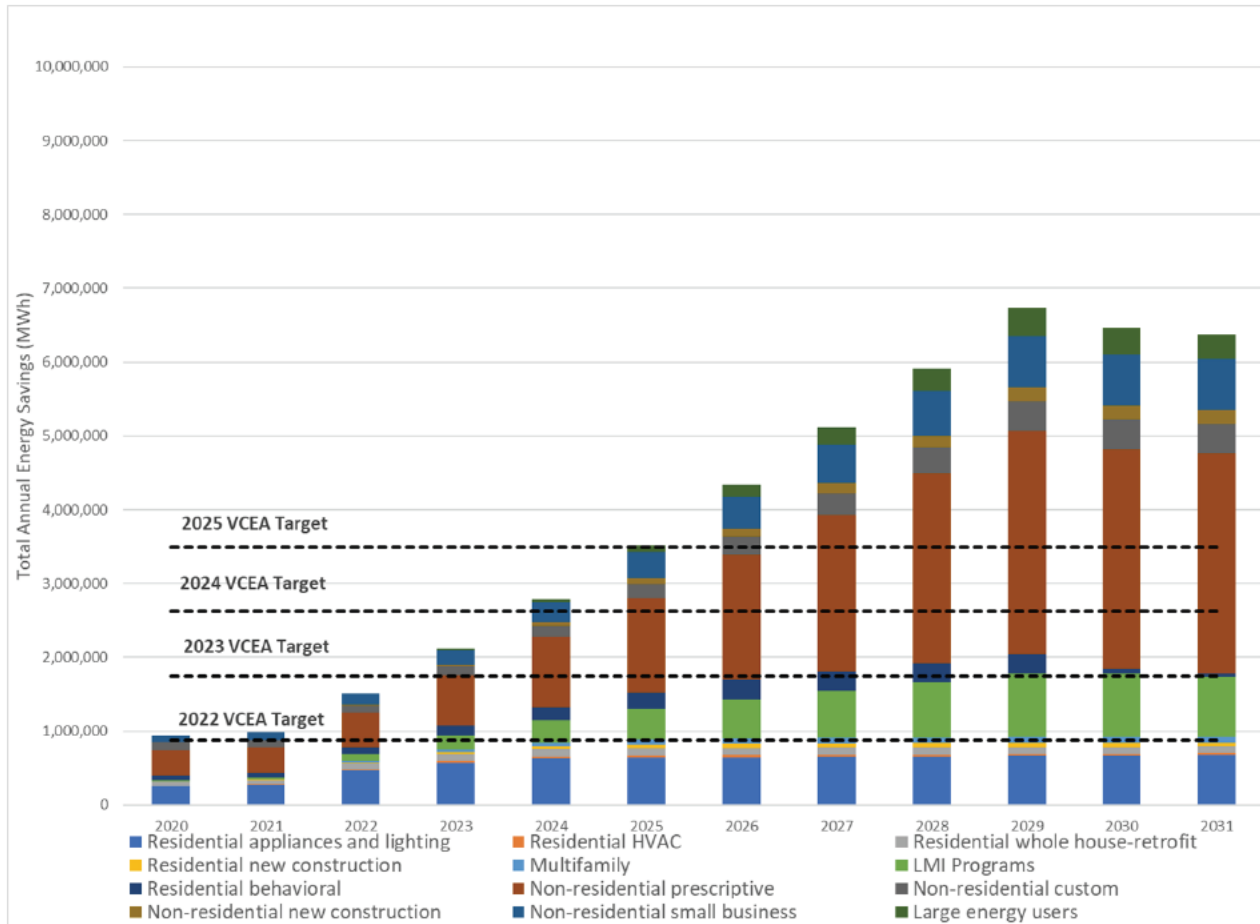


Figure 17: Balanced Lower Cost Scenario Costs through 2025

	2020	2021	2022	2023	2024	2025
Residential appliances and lighting	\$ 9,820,000	\$ 11,960,000	\$ 32,718,380	\$ 11,960,000	\$ 2,140,000	\$ 2,140,000
Residential HVAC	\$ 33,820,000	\$ 33,820,000	\$ 1,400,000	\$ 1,400,000	\$ -	\$ -
Residential whole house-retrofit	\$ 4,680,000	\$ 6,920,000	\$ 6,920,000	\$ 6,920,000	\$ 2,240,000	\$ 2,240,000
Residential new construction	\$ -	\$ 7,200,000	\$ 7,200,000	\$ 7,200,000	\$ 7,200,000	\$ 7,200,000
Multifamily	\$ -	\$ 2,920,000	\$ 2,920,000	\$ 2,920,000	\$ 2,920,000	\$ 2,920,000
LMI Programs	\$ 9,300,000	\$ 13,360,000	\$ 20,384,649	\$ 28,546,974	\$ 36,709,298	\$ 36,709,298
Residential behavioral	\$ 1,860,000	\$ 1,860,000	\$ 4,144,476	\$ 5,857,834	\$ 7,571,191	\$ 7,424,548
Non-residential prescriptive	\$ 12,040,000	\$ 14,140,000	\$ 30,427,087	\$ 35,442,403	\$ 42,817,718	\$ 55,033,033
Non-residential custom	\$ -	\$ -	\$ 2,691,745	\$ 4,710,554	\$ 6,729,363	\$ 8,748,172
Non-residential new construction	\$ -	\$ 3,020,000	\$ 4,164,931	\$ 5,023,629	\$ 5,882,328	\$ 6,741,026
Non-residential small business	\$ 7,180,000	\$ 11,240,000	\$ 11,690,200	\$ 15,552,849	\$ 16,935,499	\$ 20,798,149
Large energy users	\$ -	\$ -	\$ -	\$ 4,773,965	\$ 8,354,440	\$ 11,934,914
Total cost (\$/year)	\$ 78,700,000	\$ 106,440,000	\$ 124,661,468	\$ 130,308,208	\$ 139,499,837	\$ 161,889,140

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | 802-482-5001 | 802-329-2143 | info@energyfuturesgroup.com

Appendix C – Data Sources: Dominion and Comparison Portfolios

AEP Ohio. 2019. *2018 Portfolio Status Report of the Energy Efficiency and Peak Demand Response Programs*. Case No. 19-1099-EL-EEC, May 14. Columbus: Ohio PUC (Public Utilities Commission). dis.puc.state.oh.us/TiffToPDF/A1001001A19E14B25118C02745.pdf.

Ameren Missouri. 2019. *Ameren Missouri's Demand-Side Program Annual Report for 2018*. Case No. EO-2019-0372, May 29. Missouri PSC (Public Service Commission). efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=EO-2019-0372&attach_id=2019017972.

BGE (Baltimore Gas and Electric Company). 2019. *2018 Year-End EmPOWER Maryland Report of the Baltimore Gas and Electric Company*. Case No. 9494, February 15. Baltimore: Maryland PSC (Public Service Commission). webapp.psc.state.md.us/newIntranet/Casenum/NewIndex3_VOpenFile.cfm?FilePath=//Coldfusion/Casenum/9400-9499/9494/\103.pdf.

Commonwealth Edison. 2019. *ComEd Summary Impact Evaluation Report—Energy Efficiency/Demand Response Plan: Program Year 2018 (CY2018)*. Prepared by Navigant Consulting. Springfield: Illinois Commerce Commission. s3.amazonaws.com/ilsag/ComEd_CY2018_Summary_Evaluation_Report_2018-04-30_Final.pdf.

Consumers Energy. 2019. *Supplemental Direct Testimony of Theodore A. Ykimoff on Behalf of Consumers Energy Company*. Case No. U-20365, September 16. Lansing: Michigan PSC (Public Service Commission). mi-psc.force.com/sfc/servlet.shepherd/version/download/068t0000006VIRoAAO.

DTE Energy. 2019. *DTE Electric Company's Application for Approval of the Reconciliation of Its Energy Waste Reduction Plan Expenses for the Plan Year 2018*. Case No. U-20366, May 31. Lansing: Michigan PSC (Public Service Commission). mi-psc.force.com/sfc/servlet.shepherd/version/download/068t0000004n98cAAA.

Duke Energy Carolinas. 2019. *Duke Energy Carolinas, LLC's Application for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider*. Docket No. E-7, Sub 1192, February 26. Raleigh: North Carolina Utilities Commission. starw1.ncuc.net/NCUC/ViewFile.aspx?Id=7ef72466-ed10-4587-89bd-e19bf2b175cc.

Duke Energy Ohio. 2019. *In the Matter of the Annual Energy Efficiency Status Report of Duke Energy Ohio, Inc.* Case No. 19-621-EL-EEC, March 29. Columbus: PUCO (Public Utilities Commission of Ohio). dis.puc.state.oh.us/TiffToPDF/A1001001A19C29B13241104490.pdf.

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-5001 | 📠 802-329-2143 | ✉ info@energyfuturesgroup.com

Entergy Arkansas. 2019. *Arkansas Energy Efficiency Program Portfolio Annual Report*. Docket No. 07-085-TF, May 2. Little Rock: Arkansas PSC (Public Service Commission). apscservices.info/Efilings/Docket_Search_Documents.asp?Docket=07-085-TF&DocNumVal=561.

MidAmerican Energy Company. 2019. *Energy Efficiency Plan*. Docket No. EEP-2012-0002, May 1. Des Moines: Iowa Utilities Board. efs.iowa.gov/cs/groups/external/documents/docket/mdax/odq2/~edisp/1846096.pdf.

Ohio Edison. 2019. *Energy Efficiency and Peak Demand Reduction Program Portfolio Status Report to the Public Utilities Commission of Ohio*. Docket Nos. 19-1020-EL-EEC, 19-1021-EL-EEC, 19-1022-EL-EEC, May 15. dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=19-1020-EL-EEC.

Virginia Electric and Power Company: Estimated savings for Phase I through Phase VIII from Case No. PUR-2020-00035, Appendix 6D and Appendix 6I; Program budgets from Case No. PUR-2019-00201, Direct Testimony of Michael T. Hubbard. Incremental annual savings were determined as the change from one year to the next. Five year total budgets were allocated equally by implementation year.

Xcel Minnesota. 2019. *Status Report & Associated Compliance Filings: Minnesota Electric and Natural Gas Conservation Improvement Program*. Docket No. E,G002/CIP-16-115, April 1. Minnesota Department of Commerce. edockets.state.mn.us/Efiling/edockets/searchDocuments.do?method=showPoup&documentId=%7BA066D969-0000-C119-9E6C-26A4634F87C5%7D&documentTitle=20194-151545-01.

CERTIFICATE OF SERVICE

I hereby certify that the parties listed below have been served via first class U.S. Mail or electronic mail with a copy of the *Comments* of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy.

Andrew W. Knowles, Counsel
Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, South Carolina 29201
aknowles@ors.sc.gov

Carri Grube Lybarker, Consumer Advocate
S.C. Department of Consumer Affairs
Post Office Box 5757
Columbia, South Carolina 29250
clybarker@scconsumer.gov

Derrick Price Williamson, Counsel
Spillman Thomas & Battle, PLLC
1100 Bent Creek Boulevard, Suite 101
Mechanicsburg, Pennsylvania 17050
dwilliamson@spillmanlaw.com

Heather Shirley Smith, Dep. Gen. Counsel
Duke Energy Corporation
40 West Broad Street, Suite 690
Greenville, South Carolina 29601
Heather.smith@duke-energy.com

Nicole M. Hair
Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, South Carolina 29201
nhair@ors.sc.gov

Robert R. Smith, II, Counsel
Moore & Van Allen, PLLC
100 North Tryon Street, Suite 4700
Charlotte, North Carolina 28202
robsmith@mvalaw.com

Roger Hall, Counsel
S.C. Department of Consumer Affairs
Post Office Box 5757
Columbia, South Carolina 29250
rhall@scconsumer.gov

Samuel J. Wellborn, Counsel
Duke Energy Corporation
1201 Main Street, Suite 1180
Columbia, South Carolina 29201
sam.wellborn@duke-energy.com

Stephanie U. Eaton, Counsel
Spilman Thomas & Battle, PLLC
110 Bent Creek Boulevard, Suite 101
Mechanicsburg, Pennsylvania 17050
seaton@spilmanlaw.com

This 15th day of October, 2021.
S/Emma C. Clancy